U.S. Army Environmental Center

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## U.S. ARMY ENVIRONMENTAL CENTER



# WOODBRIDGE RESEARCH FACILITY
# 1995 ASBESTOS SURVEY

## WOODBRIDGE, VIRGINIA

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**FINAL REPORT**



**October 6, 1995**

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U.S. Army Woodbridge research Facility (WRF) is a former military communication center and research and development laboratory where electromagnetic pulse energy was tested on military and other equipment. The facility is presently inactive and in the process of being closed or transferred to another government agency as part of the 1991 Base Realignment and Closure (BRAC) list. This asbestos survey fulfilled a DOD policy requirement for an asbestos survey prior to property transfer. A total of 142 bulk samples were collected and later analyzed by polarized light microscopy, coupled with dispersion staining techniques to determine if any of the samples could be categorized as asbestos containing material (ACM). Six of the 142 bulk samples collected were ACM; however, none were friable or significantly damaged. No remediation of ACM was required.

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**October 6, 1995**



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## EXECUTIVE SUMMARY

The Army Environmental Center (AEC) contracted Horne Engineering Services, Inc. (Horne Engineering) to perform an asbestos survey for the Woodbridge Research Facility (WRF), Woodbridge, Virginia under contract number DACA31-93-D-0064, delivery order number 0017. Horne Engineering conducted an initial field visit on May 9, 1995, to evaluate potential bulk sample locations. A technical plan was subsequently prepared for, and approved by the AEC. Field work for the asbestos survey portion of this project was conducted on July 5 and 6, 1995.

For the purposes of this survey, all 9"x 9" floor tiles found at the survey site are assumed to contain asbestos. This type of floor tile is present in buildings 101, 201, 202, and 203 at the locations noted on the drawings in Appendix A. A ten-foot diameter area of 9"x 9" tiles in room 108 of building 203 is water damaged. The tiles are warped and loose from their mastic exposing another layer of 9"x 9" tiles below. The asbestos in the tile is not friable and does not pose a threat to human health. According to State and Federal Regulations and Department of Defense Policy, the tile does not have to be removed.

A total of 142 bulk samples were collected and later analyzed by polarized light microscopy coupled with dispersion staining techniques to detect if any of the samples are asbestos containing materials (ACM). An ACM, as defined by the Environmental Protection Agency, is one that contains greater than 1 percent asbestos by volume. Of the 142 bulk samples collected, six are ACM's. None of the ACM present at the WRF is friable or damaged in a way that would require removal.

- One of the nineteen samples collected from building 211 is an ACM. The white duct glue on the duct work above the suspended ceiling in room 307 contains 10 to 20 percent chrysotile asbestos.

- Two of the thirty-eight samples collected from building 203 are ACM. White glue on the duct work in room 102, and the black glue on the duct work in room 225, contain 5 to 10 percent chrysotile asbestos.

- Two of the forty-four samples collected from building 201 are ACM. The 12"x12" beige with white and gray mottling floor tile in the lobby of building 201, contains 5 to 10 percent chrysotile asbestos. The white glue on the duct work above the suspended ceiling in room 166 contains 5 to 15 percent chrysotile asbestos.

- One of the eleven samples collected from building 202 contains asbestos. The 12"x12"green and gray floor tile with white streaks in room 101 contains 5 to 10 percent chrysotile asbestos. The mastic from this tile is also an ACM containing 1 to 5 percent asbestos.

Sample number D032, a 12"x12" floor tile, contains less than 1 percent asbestos according to the laboratory analysis. This 12"x12" floor tile was identified as containing from 1 to 5 percent asbestos in an asbestos survey conducted by Biospherics, Inc. (Biospherics) on August 10, 1990. The discrepancy between these two analyses is small and is most likely due to the limitations of polarized light microscopy in identifying asbestos in floor tiles. As a conservative measure, this material should be managed as an ACM.

Samples collected from buildings 101, 102, 204, 210, and 306, and the samples from the culvert and the exterior of building 203, do not contain asbestos.

Sample number D032, a 12"x12" floor tile, contains less than 1 percent asbestos according to the laboratory analysis. This 12"x12" floor tile was identified as containing from 1 to 5 percent asbestos in an asbestos survey conducted by Biospherics, Inc. (Biospherics) on August 10, 1990. The discrepancy between these two analyses is small and is most likely due to the limitations of polarized light microscopy in identifying asbestos in floor tiles. As a conservative measure, this material should be managed as an ACM.

Samples collected from buildings 101, 102, 204, 210, and 306, and the samples from the culvert and the exterior of building 203, do not contain asbestos.

## 1.0 INTRODUCTION

The Army Environmental Center (AEC) contracted Horne Engineering Services, Inc. (Horne Engineering) to perform an asbestos survey for the Woodbridge Research Facility (WRF), Woodbridge, Virginia under contract number DACA31-93-D-0064, delivery order number 0017. Field work for this project was conducted on May 9 and July 5 and 6, 1995.

## 2.0 BACKGROUND

The WRF was established in 1951 as a military radio station. Currently, the WRF is an inactive facility under the command of the Army Research Laboratory, headquartered in Adelphi, Maryland. In the fall of 1995, the facility is scheduled for transfer to the U.S. Fish and Wildlife Service. This asbestos survey is a requirement of this property transfer under the Base Realignment and Closure (BRAC) program, 1991 BRAC list. The WRF consists of nine buildings on 579 acres of government owned land.

The scope of this asbestos survey encompasses the interior of all nine buildings. AEC also requested that an exterior pipe on the southern side of building 203, and a culvert on the northeastern corner of WRF be sampled. The following table generally describes the nine buildings sampled:

| Building Number | Current Use | Year Built | Stories | Area Sq/Ft |
|---|---|---|---|---|
| 101 | Main Sentry Station | 1970 | 1 | 1216 |
| 102 | Sentry Station | 1963 | 1 | 38 |
| 201 | Electronic Equipment Facility | 1952 | 1 | 24306 |
| 202 | Facility Engineering/Motor Pool | 1952 | 1 | 15093 |
| 203 | Electronic Equipment Facility | 1952 | 2 | 13748 |
| 204 | Facilities Engineering Storehouse | 1964 | 1 | 456 |
| 210 | Sentry Station | 1954 | 1 | 80 |
| 211 | Electronic Equipment Facility | 1979 | 3 | 18000 |
| 306 | Command and Control Facility | 1979 | 2 | 1920 |

## 3.0 PURPOSE

The purpose of this project is to identify the locations and condition of asbestos containing materials (ACM) within the nine buildings at the WRF and document it for a BRAC transfer of the property.

## 4.0 SUMMARY OF PREVIOUS STUDIES

### 4.1 1990 Asbestos Location Survey

During the initial site meeting Horne Engineering was provided with the written portion of an asbestos location survey that was previously conducted by Biospherics, Inc. (Biospherics), on August 10, 1990. This, referred to in this report as the 1990 Asbestos Location Survey, addressed suspected ACM in buildings 201, 202, and 203. The other six buildings present at the WRF were not addressed in the Biospherics survey. None of the enclosures for the report including the drawings showing location of samples and ACM were available for review. According to the Army Research Laboratories (ARL), all friable ACM has been removed from the nine buildings. There is not enough available data to document the Biospherics' survey or subsequent abatements for the upcoming BRAC transfer adequately. The survey for this 1995 project concentrated on verifying the Biospherics findings and documenting the location and extent of asbestos containing materials in the remaining six buildings. The following is a summary of the asbestos survey results from the 1990 Biospherics report.

#### 4.1.1 Building Number 201

Of the forty bulk samples collected in building 201, ten were asbestos-containing. The materials that contained asbestos included fibrous block and corrugated paper pipe insulation, debris from pipe insulation in rooms W148 and E155, pipe fitting insulation on fiberglass insulated lines, and flexible duct joints. The materials sampled that did not contain asbestos were ceiling plaster, plaster overpour on structural beams, 12"x12" interlocking acoustical ceiling tiles, and 2'x4' drop-in acoustical ceiling tiles.

#### 4.1.2 Building Number 202

Of the thirteen bulk samples collected in building 202, four were asbestos-containing. The asbestos containing materials included pipe fitting insulation and a fabric flex joint that was hanging from a heater unit. The materials sampled that did not contain asbestos were textured ceiling material, 12"x12" interlocking acoustical ceiling tiles, and 2'x4' drop-in acoustical ceiling tiles.

### 4.1.3 Building Number 203

Of the thirty-seven bulk samples collected in building 203, sixteen contained asbestos. The materials found to contain asbestos included pipe insulation and pipe insulation debris in the building's crawl space; stack, boiler, and pipe insulation in the building's boiler room; and pipe insulation, flexible duct joints, one type of floor tile, and ceiling tile mastic in the building's occupied space. The sampled materials that did not contain asbestos were fire brick from the boiler interior, pipe fitting insulation associated with fiberglass insulated piping on the first and second floors, ceiling plaster, and 2'x4' drop-in acoustical ceiling tiles.

Biospherics subcontracted Wayne Insulation to conduct an asbestos abatement of the thermal and domestic water system insulation in buildings 201, 202, and 203. The abatement project was to remove all of the insulation that contained asbestos. Additional work was done in building 101 through change orders coordinated with ARL.

## 4.2 1991 Enhanced Preliminary Assessment

During the initial site meeting, Horne Engineering was also provided with an Enhanced Preliminary Assessment conducted by Roy E. Weston, Inc. (Weston). The field work for the 1991 Enhanced Preliminary Assessment occurred in September of 1991 and is documented in the report dated March 2, 1992. The Weston report addressed many areas of environmental concern on WRF. However, for the purposes of this report, only the section concerning asbestos (Section 3.11) was reviewed. The following is a summary of the asbestos section of the assessment.

The Weston report stated that all ACM from the domestic waterlines, steam lines, and pipe elbows were abated in the 1980s. The report stated that troweled-on plaster containing asbestos was also removed. The Weston report references contract documents, dated September 29, 1990, describing sampling and subsequent ACM abatement done in buildings 201, 202, and 203. This abatement was done by Capitol Contractors, Inc. The ACM identified and abated in this effort included pipe insulation, lagging, debris on underlying ceiling tiles, and wall board. According to Mr. Steve Rock, of the Army Research Laboratory, Biospherics and Wayne Insulation were subcontracted by Capitol Contractors, Inc. to perform an asbestos location survey and an asbestos abatement for the WRF because of this Enhanced Preliminary Assessment. The results of that work are described in section 4.1 above.

The Enhanced Preliminary Assessment also stated that during field activities additional suspect ACM was identified. These materials included 9"x9" floor tiles in all buildings, pipe insulation on boiler pipes in Building 211, and fire door insulation in Building 201.

## 5.0 1995 ASBESTOS SURVEY RESULTS

On July 5 and 6, 1995, Bryant Bullock, an environmental scientist and Michael Bowers, an environmental engineer with Horne Engineering, performed an asbestos survey of the WRF. Van Noah, the Project Manager, ensured the survey was conducted according to the Technical Plan approved by the USAEC.

The Technical Plan for this survey was developed after the May 5, 1995 initial site visit and included a Work Plan, a Quality Assurance Project Plan (QAPP), and a site specific Health and Safety Plan. Horne Engineering investigated each of the areas identified as having an ACM in the Biospherics report. Mr. Steve Rock, Industrial Hygienist, of ARL also went on the initial site visit to point out where Wayne Insulation had abated all the friable ACM. Mr. Bryant Bullock, an AHERA accredited asbestos inspector, concluded that all the friable asbestos appeared to have been abated. The water pipe insulation appeared to be new in the areas referred to in the Biospherics report. The pipe joints were insulated with fiberglass in a modern type white formed plastic cover. Some pipes in floor and wall chases were left without insulation. There was no evidence of any remaining asbestos containing insulation.

The Scope of Work for this project did not include areas behind solid walls and assumed that all 9"x9" floor tiles are ACM. The 9"x9" floor tile is present in buildings 101, 201, 202, and 203 at the locations noted on the drawings in Appendix A.

Horne Engineering collected a total of 142 bulk samples for analysis by the polarized light microscopy method according to the Technical Plan. Oneil M. Banks, Inc., in Bel Air, Maryland, analyzed 135 samples. Six of those 135 non-duplicate bulk samples are ACM. None of the six samples analyzed as ACM's are from friable or significantly damaged materials. One out of every twenty samples was collected as a duplicate according to the QAPP. Separate analysis of duplicate samples provides a check on the validity of the sample handling and laboratory results. The seven duplicate samples are numbers C020, D040, D060, E080, E100, F120, and X140. Law Engineering, Inc., in Chantilly, Virginia analyzed the duplicate samples. None of the duplicate samples or the corresponding non-duplicate samples contained asbestos. The locations and extent of the ACM and the 9"x9" floor tile (assumed to be ACM) are depicted on the site plans included in Appendix A.

All of the ACM in the nine buildings at the WRF is non-friable and does not require abatement. All of the samples are assessed as "F - No Immediate Action" or "E - Monitoring" on the USAEC Asbestos Checklist. Both ratings do not require abatement but do require an operations and maintenance plan (O&M plan). The checklists and rating index are covered in more depth in Appendix C. The O&M plan for the WRF should address the duct glue and floor tile ACM's. An O&M plan of this type is required to ensure personnel living and working in areas where ACM is present are aware of it and avoid inadvertently causing the material to become friable. Both the floor tiles and duct glues have asbestiform fiber locked in a non-friable

matrix and do not present a health hazard with normal administrative use.

Building drawings, laboratory documentation, and the USAEC asbestos checklists are included in Appendix A, B, and C of this report. The subsections that follow are arranged by building number. Each building paragraph includes the following information:

- a summary of all ACM identified,
- the hazard ranking system results from the USAEC checklist (Appendix C),
- and a table describing the samples collected and the analysis results.

The abbreviations NAD and NA in the following tables stand for "no asbestos detected" and "not applicable," respectively. Samples that tested positive for asbestos in any amount are shaded.

## 5.1 Building 101

None of the ten samples collected from building 101 are ACM. The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| B | 003 | 101 | 102 | 12"x12" Floor Tile (Gray with White and Gray Mottling) | NAD | NA |
| B | 004 | 101 | 102 | 12"x12" Floor Tile Mastic (Gray with White and Gray Mottling) | NAD | NA |
| B | 005 | 101 | NA | 12"x12" Floor Tile (Gray with White and Gray Mottling) | NAD | NA |
| B | 006 | 101 | NA | Black Mastic from 12"x12" Floor Tile (Gray with White and Gray Mottling) | NAD | NA |
| B | 007 | 101 | 102 | Drywall and Joint Compound | NAD | NA |
| B | 008 | 101 | 103 | 2'x4' Ceiling Tile (Marble Pattern w/ Pinholes) | NAD | NA |
| B | 009 | 101 | NA | 2'x4' Ceiling Tile (Marble Pattern w/Pinholes) | NAD | NA |
| B | 010 | 101 | NA | 6" Black Cove Molding | NAD | NA |

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| B | 011 | 101 | NA | Black Mastic from 6" Black Cove Molding | NAD | NA |
| B | 012 | 101 | 105 | Duct Gasketing Material | NAD | NA |

## 5.2 Building 102

Neither of the two samples collected from building 102 are ACM. The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| A | 001 | 102 | NA | Painted Drywall and Joint Compound | NAD | NA |
| A | 002 | 102 | NA | Tan Counter Top Mastic | NAD | NA |

## 5.3 Building 201

The 1990 Biospherics report identified the following ACM in building 201:

- debris from pipe insulation in rooms W148 and E156,
- fibrous block and corrugated paper pipe insulation,
- pipe fitting insulation on fiberglass insulated lines,
- and flexible duct joints,

All of the pipe insulation and other ACM appears to be gone as assessed in the initial site visit. Horne Engineering sampled debris in steam line chases to assure that no ACM was left.

For our survey, two of the forty-four samples collected from building 201 are ACM. The 12"x12" beige with white and gray mottling floor tile in the lobby of building 201 contains 5 to 10 percent chrysotile asbestos. The white glue on the duct work above the suspended ceiling in room 166 contains 5 to 15 percent chrysotile asbestos. The USAEC Asbestos checklist assessment index for both material is "E - Monitoring." The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| E | 070 | 201 | N106 | 2'x4' Ceiling Tile (Mottled Pattern w/Pinholes) | NAD | NA |
| E | 071 | 201 | N106 | 2'x4' Ceiling Tile (Marbled Pattern w/Pinholes) | NAD | NA |
| E | 072 | 201 | N106 | Drywall and Joint Compound | NAD | NA |
| E | 073 | 201 | N106 | Debris in Steam Line Chase | NAD | NA |
| E | 074 | 201 | Lobby | 12"x12" Floor Tile (Beige w/White and Gray Mottling) | 1-10 | Chrysotile |
| E | 075 | 201 | Hall | 2'x4' Ceiling Tile (Pocked w/Small and Large Pinholes) | NAD | NA |
| E | 076 | 201 | Hall | Brown Mastic | NAD | NA |
| E | 077 | 201 | N101 A | 4'x8' Primary Ceiling | NAD | NA |
| E | 078 | 201 | N101 A | Tan Plaster Wall Material | NAD | NA |
| E | 079 | 201 | N101 | Drywall Plaster Compound | NAD | NA |
| E | 080 | | | Duplicate of E081 | NAD | NA |
| E | 081 | 201 | N101 | White Thermal System Pipe Sealant | NAD | NA |
| E | 082 | 201 | N107 | 12"x12" Acoustical Tile (½" Dot Pattern) | NAD | NA |
| E | 083 | 201 | N107 | Brown Mastic from 12"x12" Acoustical Tile (½" Dot Pattern) | NAD | NA |
| E | 084 | 201 | N107 | 2'x4' Ceiling Tile (Straight Wormy Pattern w/Small and Large Pinholes) | NAD | NA |
| E | 085 | 201 | N107 | 2'x4' Ceiling Tile (Marbled w/Many Pinholes) | NAD | NA |

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| E | 086 | 201 | N107 | 2'x4' Ceiling Tile (Bone Colored, Marbled, w/Pinholes) | NAD | NA |
| E | 087 | 201 | N107 | 4" Black Cove Molding | NAD | NA |
| E | 088 | 201 | N107 | Brown Mastic from 4" Black Cove Molding | NAD | NA |
| E | 089 | 201 | N109 | 6" Black Cove Molding | NAD | NA |
| E | 090 | 201 | N109 | Brown Mastic from 6" Black Cove Molding | NAD | NA |
| E | 091 | 201 | N111 | Plaster Wall | NAD | NA |
| E | 092 | 201 | N101 | Electrical Chase Debris | NAD | NA |
| E | 093 | 201 | N116 | Drywall and Joint Compound | NAD | NA |
| E | 094 | 201 | N118 | Brown Mastic Above Ceiling | NAD | NA |
| E | 095 | 201 | N118 | 12"x12" Floor Tile (Beige w/Brown and White Mottling) | NAD | NA |
| E | 096 | 201 | W154 | Drywall and Joint Compound | NAD | NA |
| E | 097 | 201 | E157 | 4" Brown Cove Molding | NAD | NA |
| E | 098 | 201 | E157 | Mastic from 4" Brown Cove Molding | NAD | NA |
| E | 099 | 201 | E157 | Drywall and Joint Compound | NAD | NA |
| E | 100 | | | Duplicate of E101 | NAD | NA |
| E | 101 | 201 | E169 | 12"x12" White Acoustical Tile (1" Dot Spacing) | NAD | NA |
| E | 102 | 201 | E169 | Brown Mastic from 12"x12" White Acoustical Tile (1" Dot Spacing) | NAD | NA |
| E | 103 | 201 | E166 | 12"x12" White Acoustical Tile (½" Spacing) | NAD | NA |

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| E | 104 | 201 | E166 | 12"x12" Floor Tile (Beige w/White and Gray Mottling) | NAD | NA |
| E | 105 | 201 | E166 | Wall Plaster | NAD | NA |
| E | 106 | 201 | E168 | Particle Board Tan Mastic | NAD | NA |
| E | 107 | 201 | E166 | White Duct Glue | 5-15 | Chrysotile |
| E | 108 | 201 | E166 | Drywall and Joint Compound | NAD | NA |
| E | 109 | 201 | E166 | Green Painted Wall Plaster | NAD | NA |
| E | 110 | 201 | Hall (S120) | Painted Drywall and Joint Compound | NAD | NA |
| E | 111 | 201 | Hall (W148) | 2'x4' Ceiling Tile (Mottled w/Pinholes) | NAD | NA |
| E | 112 | 201 | W148 | Painted Drywall and Joint Compound | NAD | NA |
| E | 113 | 201 | W151 | 2'x4' Ceiling Tile (Pocked w/Small and Large Pinholes) | NAD | NA |
| E | 114 | 201 | W140 | 4" Brown Cove Molding | NAD | NA |
| E | 115 | 201 | Maint. | 2'x4' Ceiling Tile (Wormy Pattern w/Large Pinholes and Woven Texture) | NAD | NA |

## 5.4 Building 202

The Biospherics report identified pipe fitting insulation and a fabric flex joint hanging from a heater unit as ACM. All of the pipe insulation and other ACM appears to be gone as assessed in the initial site visit. There were no fabric flex joints hanging from any heater units.

One of the eleven samples collected from building 202 is ACM. The 12"x12"green and gray floor tile with white streaks in room 101 contains 5 to 10 percent chrysotile asbestos. The mastic from this tile is also an ACM containing 1 to 5 percent asbestos. The mastic and the tile were collected as one sample because they could not be separated in the field. The materials were separated at the analysis laboratory. The mastic is identified separately as sample number F123A

in the table below. Both materials were recorded on one USAEC Asbestos checklist but put in the summary as separate lines. The USAEC Asbestos checklist assessment index for both materials is "E - Monitoring." The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| F | 116 | 202 | 121 | 4" Black Cove Molding | NAD | NA |
| F | 117 | 202 | 121 | Brown Mastic from 4" Black Cove Molding | NAD | NA |
| F | 118 | 202 | 117 | Gray, Fibrous Debris | NAD | NA |
| F | 119 | 202 | 115 | Painted Drywall and Joint Compound | NAD | NA |
| F | 120 | | | Duplicate of F121 | NAD | NA |
| F | 121 | 202 | 103C | 12"x12" White Acoustical Tile w/Small Pinholes | NAD | NA |
| F | 122 | 202 | 101 | Drywall and Joint Compound | NAD | NA |
| F | 123 | 202 | 101 | 12"x12" Floor Tile (Green and Gray w/White Streaks) | 5-10 | Chrysotile |
| F | 123A | 202 | 101 | Black Mastic from 12"x12" Floor Tile (Green and Gray w/White Streaks) | 1-5 | Chrysotile |
| F | 124 | 202 | 103 | Ceiling Material | NAD | NA |
| F | 125 | 202 | 114 | 4" Black Cove Molding | NAD | NA |
| F | 126 | 202 | 114 | Brown Mastic from 4" Black Cove Molding | NAD | NA |
| F | 127 | 202 | 114 | Drywall and Joint Compound | NAD | NA |

## 5.5 Building 203

The 1990 Biospherics report identified the following ACM in building 203:

- pipe insulation and pipe insulation debris in various areas throughout the building,
- and flexible duct joints, floor tile, and ceiling tile mastic in the occupied space.

All of the pipe insulation appears to be gone as assessed in the initial site visit. The boiler room has newer looking insulation and new labeling suggesting all the insulation was replaced. The floor tile analyzed as ACM by Biospherics contained less than 1 percent in the sample collected as part of this survey. The discrepancy between these two analyses is small and is most likely due to the limitations of polarized light microscopy (PLM), a visual form of microscopy, in identifying asbestos in floor tiles. The extremely small size and clumped distribution of asbestos fibers in floor tile makes them very difficult to detect using visual microscopy. Biospherics sampled this 12"x12" floor tile in three locations of the main entrance. The results of the analysis were 1 to 2 percent asbestos in two locations and 2 to 5 percent asbestos in the other.

The results of our survey show two of the thirty-eight samples collected from building 203 as ACM. The white glue on the duct work in room 102, and the black glue on the duct work in room 225, contain 5 to 10 percent chrysotile asbestos. The USAEC Asbestos checklist assessment index for both materials is "F - No Immediate Action." The floor tile collected as sample number D032 had detectable amounts of asbestos but not enough to classify it as ACM. Because the same material was analyzed as ACM by Biospherics, Horne Engineering decided to conservatively classify the material as an ACM. The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| D | 032 | 203 | Main Ent. | 12"x12" Floor Tile (Tan w/Orange, Brown, and White Mottling) | <1 | Chrysotile |
| D | 033 | 203 | Main Ent. | Black Mastic from 12"x12" Floor Tile (Tan w/Orange, Brown, and White Mottling) | NAD | NA |
| D | 034 | 203 | Main Ent. | Staircase Tread | NAD | NA |
| D | 035 | 203 | Main Ent. | Mastic from Staircase Tread | NAD | NA |

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| D | 036 | 203 | 117 | Tan Plaster Base Material | NAD | NA |
| D | 037 | 203 | 117 | White Drywall Material Over Tan Plaster | NAD | NA |
| D | 038 | 203 | 124 | Brown Mastic from 12"x16" Acoustical Tile (3/8" Dot Pattern) | NAD | NA |
| D | 039 | 203 | 124 | 12"x16" Acoustical Tile (3/8" Dot Pattern) | NAD | NA |
| D | 040 | | | Duplicate of D041 | NAD | NA |
| D | 041 | 203 | 124 | 2' x 2' Floor Tile | NAD | NA |
| D | 042 | 203 | Main Ent. | 6" Black Cove Molding | NAD | NA |
| D | 043 | 203 | Main Ent. | Tan Mastic from 6" Black Cove Molding (Outer Layer) | NAD | NA |
| D | 044 | 203 | Main Ent. | Black Mastic from 6" Black Cove Molding (Inner Layer) | NAD | NA |
| D | 045 | 203 | 108 | Tan Plaster Base Material | NAD | NA |
| D | 046 | 203 | 108 | White Drywall Material Over Tan Plaster | NAD | NA |
| D | 047 | 203 | 108 | Drywall and Joint Compound | NAD | NA |
| D | 048 | 203 | 102 | Tan Duct Glue | NAD | NA |
| D | 049 | 203 | 102 | White Duct Glue | 5-10 | Chrysotile |
| D | 050 | 203 | 102 | Brown Mastic | NAD | NA |
| D | 051 | 203 | 102 | 2'x4' Ceiling Tile (Mottled Pattern w/Small Pinholes) | NAD | NA |
| D | 052 | 203 | 125 | 4" Black Cove Molding | NAD | NA |
| D | 053 | 203 | 125 | Brown Mastic from 4" Black Cove Molding | NAD | NA |

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| D | 054 | 203 | 124 | 4" Brown Cove Molding | NAD | NA |
| D | 055 | 203 | 124 | Brown Mastic from 4" Brown Cove Molding | NAD | NA |
| D | 056 | 203 | 225 | Drywall and Joint Compound | NAD | NA |
| D | 057 | 203 | 225 | Plaster | NAD | NA |
| D | 058 | 203 | 225 | Black Duct Glue | 5-10 | Chrysotile |
| D | 059 | 203 | 224 | 6" Black Cove Molding | NAD | NA |
| D | 060 | | | Duplicate of D061 | NAD | NA |
| D | 061 | 203 | 224 | Brown Mastic from 6" Black Cove Molding | NAD | NA |
| D | 062 | 203 | 219 | Brown Mastic from Corkboard | NAD | NA |
| D | 063 | 203 | 2nd Floor Hall | 2'x4' Ceiling Tile (Mottled Pattern w/Pinholes) | NAD | NA |
| D | 064 | 203 | 2nd Floor Hall | 2'x4' Ceiling Tile (Marbled Pattern w/Pinholes) | NAD | NA |
| D | 065 | 203 | 2nd Floor Hall | 2'x4' Ceiling Tile (Wormy Pattern w/Pinholes) | NAD | NA |
| D | 066 | 203 | 210 | Beige, Painted (2 coats) Drywall and Joint Compound | NAD | NA |
| D | 067 | 203 | 205 | Drywall and Joint Compound | NAD | NA |
| D | 068 | 203 | 210 | 2'x4' Ceiling Tile (Mottled Pattern w/Pinholes) | NAD | NA |
| D | 069 | 203 | 202 | Tan Pressboard | NAD | NA |

## 5.6 Building 204

Neither of the two samples collected from building 204 contains asbestos. The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| H | 130 | 204 | NA | Concrete Floor | NAD | NA |
| H | 131 | 204 | NA | Concrete Ceiling | NAD | NA |

## 5.7 Building 210

Neither of the two samples collected from building 210 is ACM. The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| G | 128 | 210 | NA | 12"x12" Floor Tile (Beige w/Black & White Mottling) | NAD | NA |
| G | 129 | 210 | NA | Tan Mastic from 12"x12" Floor Tile (Beige w/Black & White Mottling) | NAD | NA |

## 5.8 Building 211

One of the nineteen samples collected from building 211 is an ACM. The white glue on the duct work above the suspended ceiling in room 307 contains 10 to 20 percent chrysotile asbestos. The USAEC Asbestos checklist assessment index for the material is "F - No Immediate Action." The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| C | 013 | 211 | 315 | 2'x4' Ceiling Tile (Wormy Pattern w/Large Pinholes) | NAD | NA |
| C | 014 | 211 | Hall | 2'x4' Ceiling Tile (Wormy Pattern w/Small Pinholes) | NAD | NA |
| C | 015 | 211 | 307 | Drywall and Joint Compound | NAD | NA |

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| C | 016 | 211 | 307 | White Duct Glue | 10-20 | Chrysotile |
| C | 017 | 211 | 310 | Troweled Window Material | NAD | NA |
| C | 018 | 211 | 307 | 4" High Brown Cove Molding | NAD | NA |
| C | 019 | 211 | 307 | Black Mastic from 4" High Brown Cove Molding | NAD | NA |
| C | 020 | | | Duplicate of C021 | NAD | NA |
| C | 021 | 211 | Hall | 2'x4' Ceiling Tile (Mottled Pattern w/Small Pinholes) | NAD | NA |
| C | 022 | 211 | 310 | 12"x12" Floor Tile (Light Tan w/Brown Mottling) | NAD | NA |
| C | 023 | 211 | 310 | Brown Mastic from 12"x12" Floor Tile (Light Tan w/Brown Mottling) | NAD | NA |
| C | 024 | 211 | 113 | 12"x12" Floor Tile (Beige w/Brown and White Mottling) | NAD | NA |
| C | 025 | 211 | 112 | Drywall and Joint Compound | NAD | NA |
| C | 026 | 211 | 113 | Fire Door Insulation | NAD | NA |
| C | 027 | 211 | 103 | Brown Mastic from Wall | NAD | NA |
| C | 028 | 211 | 103 | 3'x3' Floor Tile | NAD | NA |
| C | 029 | 211 | Mech. Room | Duct Gasketing Material | NAD | NA |
| C | 030 | 211 | Mech. Room | Troweled Material on Ceiling | NAD | NA |
| C | 031 | 211 | Mech. Room | Boiler Jacket Insulation | NAD | NA |

## 5.9 Building 306

None of the eight samples collected from building 306 contain asbestos. The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| I | 132 | 306 | NA | 12"x12" Floor Tile (Rust Colored w/Brown and Cream Mottling) | NAD | NA |
| I | 133 | 306 | NA | Mastic from 12"x12" Floor Tile (Rust Colored w/Brown and Cream Mottling) | NAD | NA |
| I | 134 | 306 | NA | Brown Stair Tread | NAD | NA |
| I | 135 | 306 | NA | Brown Mastic from Brown Stair Tread | NAD | NA |
| I | 136 | 306 | NA | 4" Brown Cove Molding | NAD | NA |
| I | 137 | 306 | NA | Mastic from 4" Brown Cove Molding | NAD | NA |
| I | 138 | 306 | NA | Painted Drywall and Joint Compound | NAD | NA |
| I | 139 | 306 | NA | Painted Drywall | NAD | NA |

## 5.10 Exterior Samples

The sample collected from the culvert and from the thermal pipe insulation on the south side of building 203 are not ACM. The sample descriptions and analysis results are presented below.

| Sample | Number | Building | Room | Description | % Asbestos | Type of Asbestos |
|---|---|---|---|---|---|---|
| X | 140 | NA | NA | Duplicate of X-141 | NAD | NA |
| X | 141 | NA | NA | Culvert/Old Chimney | NAD | NA |
| X | 142 | 203 | NA | Thermal Insulation at South End Exterior | NAD | NA |

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

The 9"x9" floor tile assumed to be an ACM is present in buildings 101, 201, 202, and 203 at the locations noted on the drawings in Appendix A. This floor tile is in good condition except a water damaged area in room 108 of building 203. The water damaged area is ten feet in diameter with loose warped tiles exposing another layer of 9"x 9" tiles underneath them. The asbestos in the tile is not friable and does not pose a threat to human health. According to State and Federal Regulations, the tile does not have to be removed. According to the 31 October 1994 memorandum from the Office of the Under Secretary of Defense, Subject: Asbestos, Lead Paint and Radon Policies at BRAC Properties, the ACM is not to be removed. ACM is only removed when it is "of a type and condition that is not in compliance with applicable laws, regulation, and standards, or if it poses a threat to human health at the time of transfer of the property." Horne Engineering completed a USAEC Asbestos checklist for the 9"x9" tile overall and for the water damaged area, both have an assessment index of "E - Monitoring."

The asbestos containing material at WRF can be safely managed in place after an effective O&M Plan is developed. The highest USAEC Assessment Index of any of the six ACM's is "E - Monitoring." The guidance for E rated ACM, according to the checklist in Appendix C, is:

> Continue Special O&M program. Take steps to prevent damage to the ACM. Monitor the condition of all ACM frequently.

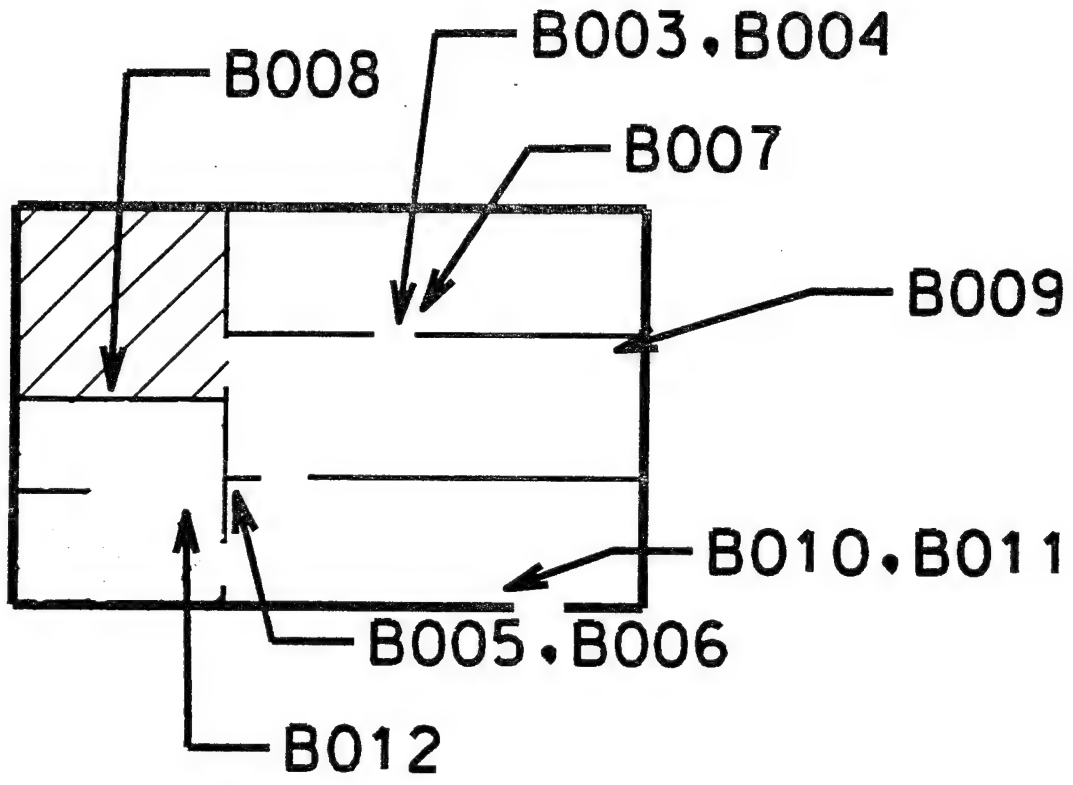
According to NESHAP 40 CFR Part 61 Subpart M, if renovation or demolition is to occur in area with ACM, and these materials may become friable as a result of the construction activities, it should be abated before it is disturbed by construction activities.

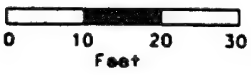
Recommend an O&M Plan be developed for WRF and implemented. The ACM found as part of this survey can be safely managed in place with a proper O&M Plan.

# APPENDIX A

Figures showing sampling locations for each building arranged in building number order:

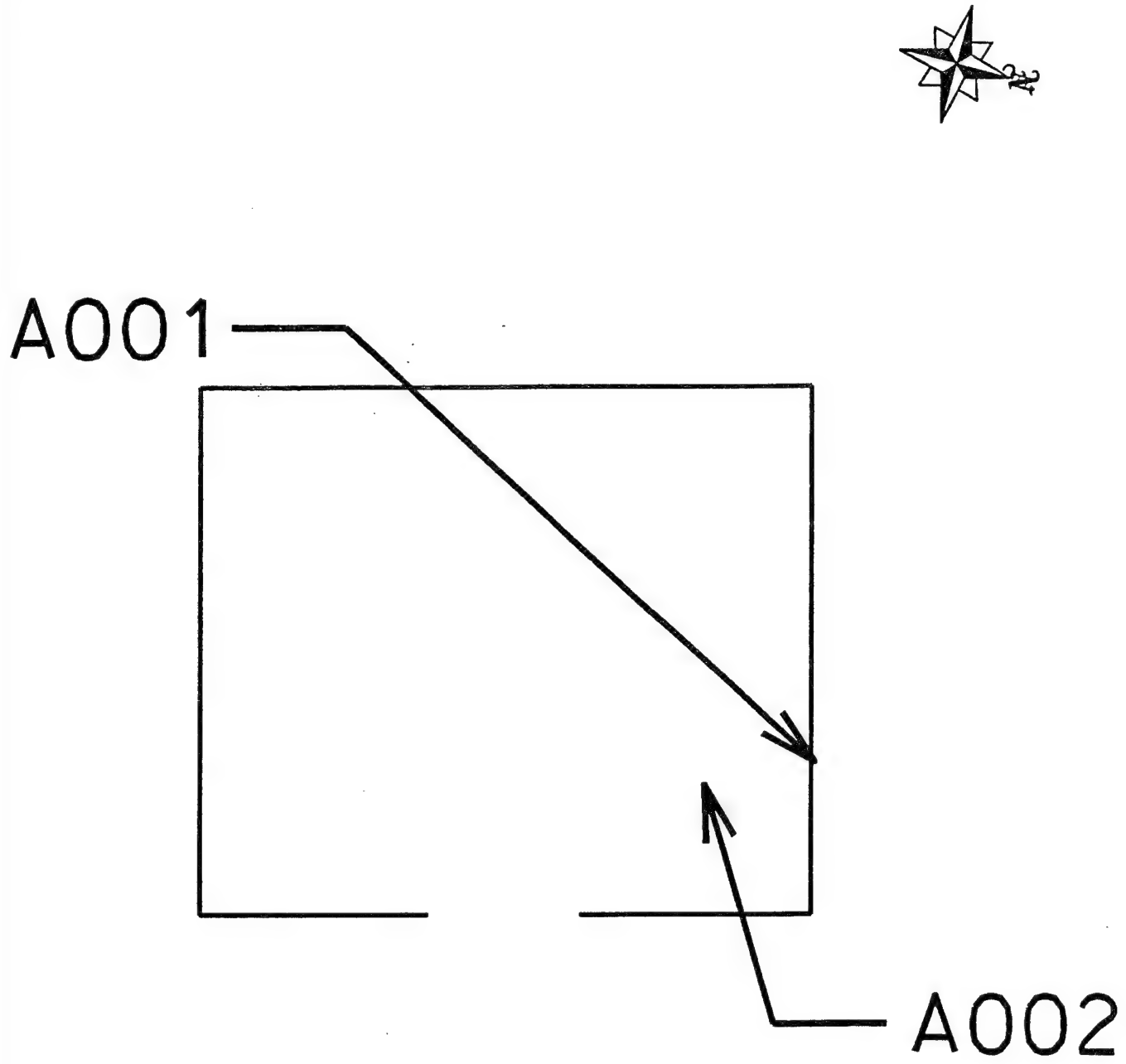
Building 101
Building 102
Building 201
Building 202
Building 203
Building 204
Building 210
Building 211
Building 306



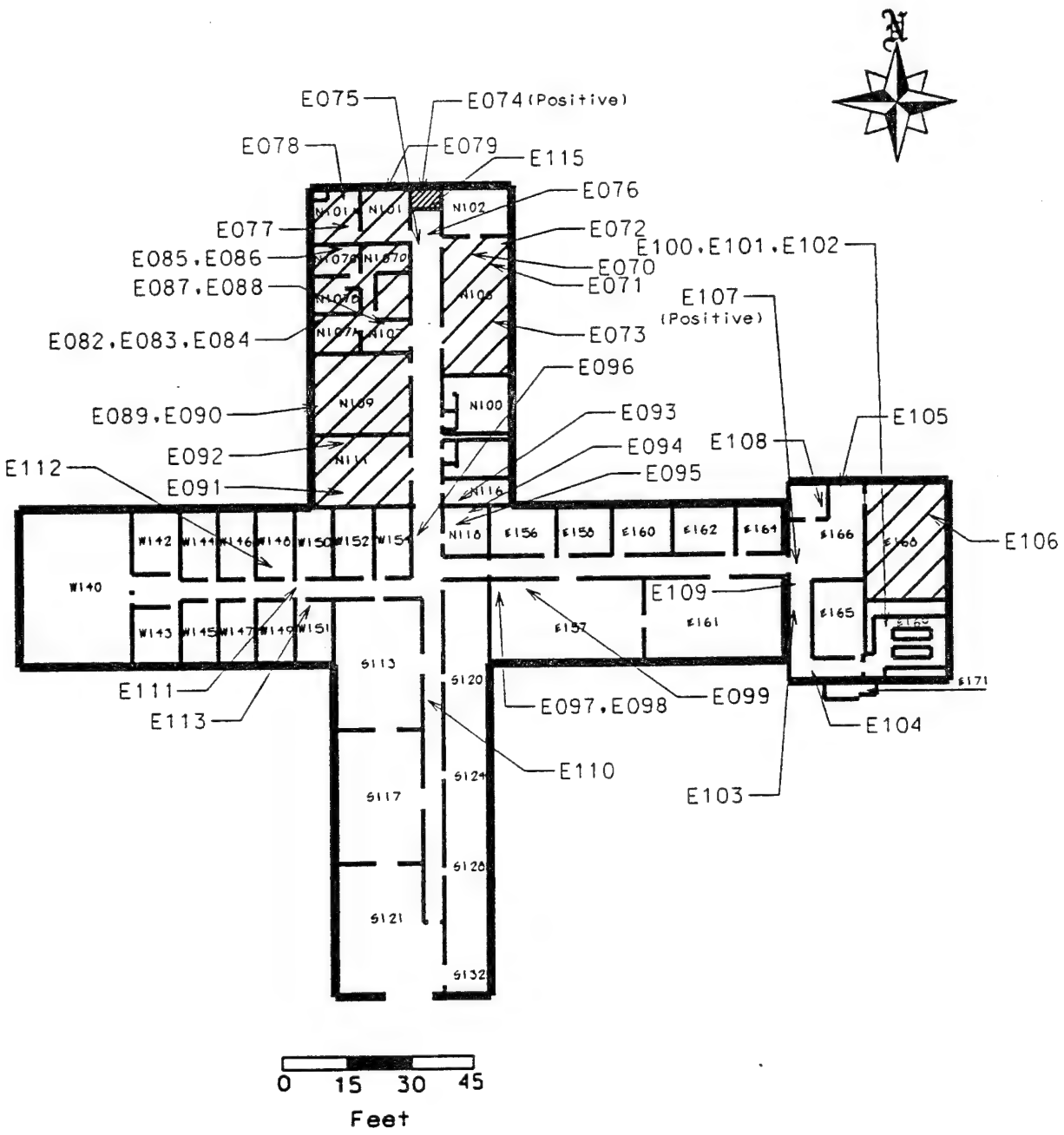

Denotes Assumed ACM/9x9 Floor Tile

| |
|---|
| Horne Engineering Services, Inc. |
| Building # 101 |
| Floor plan depicting location of asbestos samples |

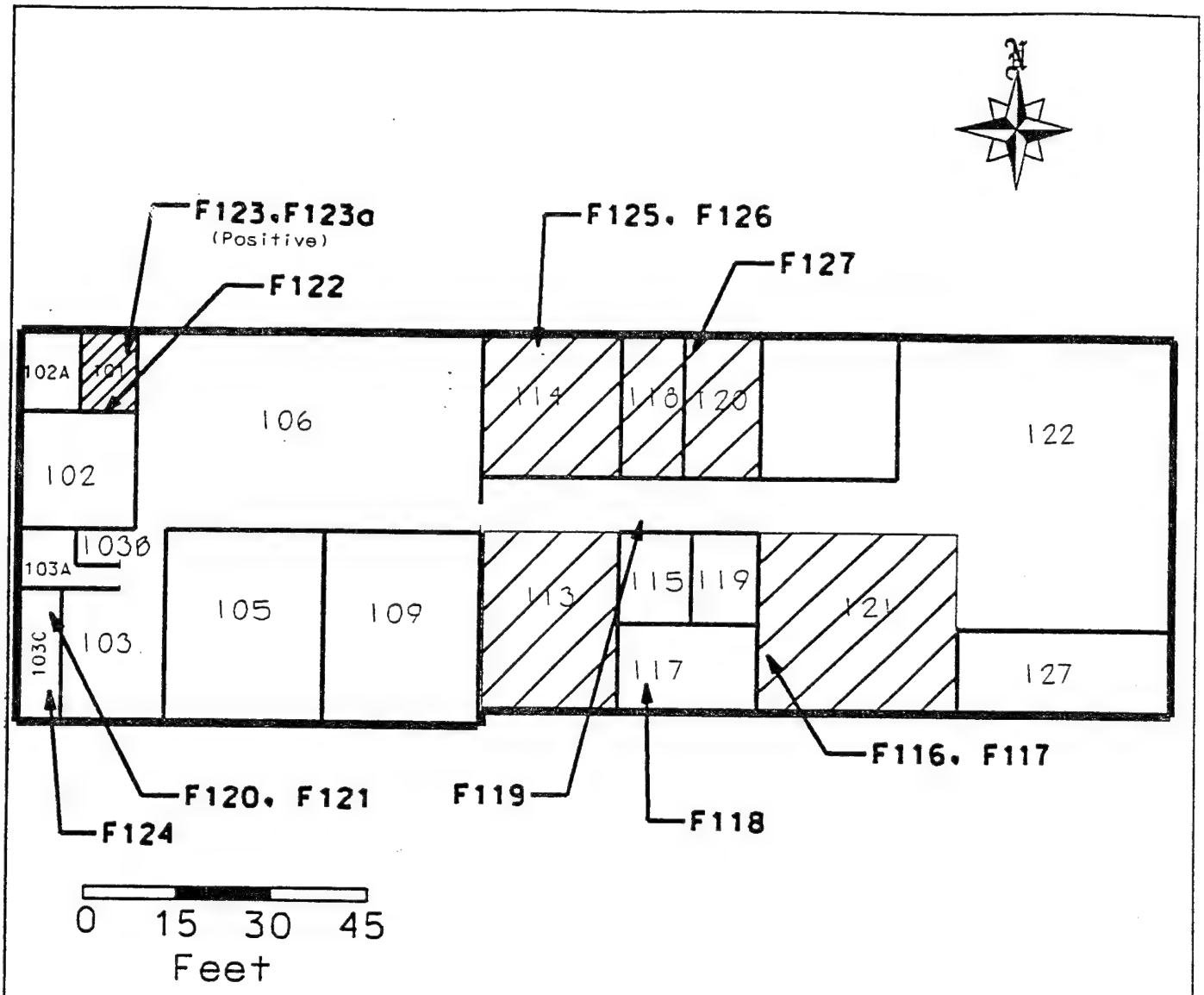




| |
|---|
| Horne Engineering Services, Inc. |
| Building # 102 |
| Floor plan depicting location of asbestos samples |



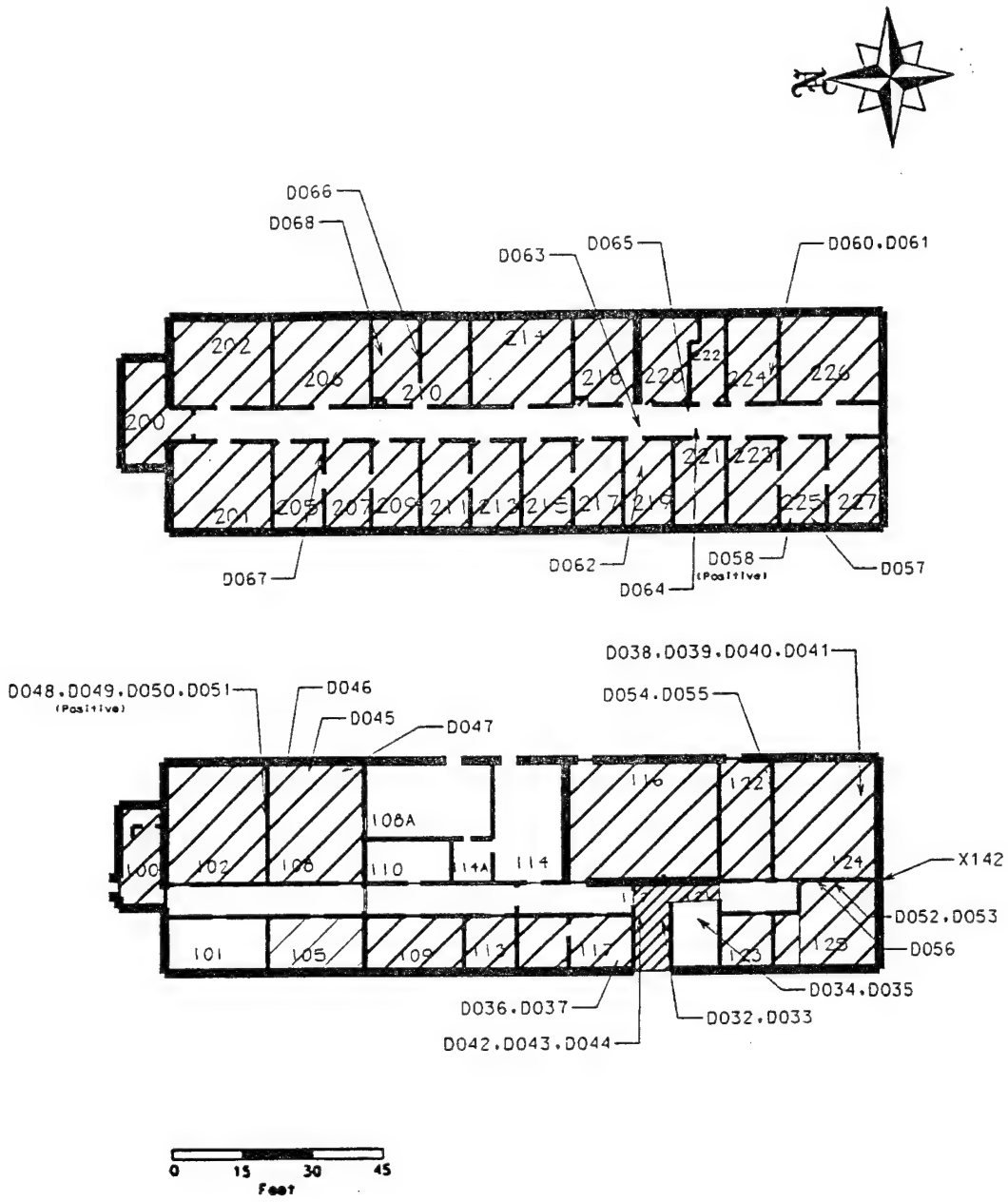

| |
|---|
| Horne Engineering Services, Inc. |
| Building # 201 |
| Floor plan depicting location of asbestos samples |




ACM (12 x 12 Green and Gray Floor Tile with White Streaks)

Denotes Assumed ACM/9x9 Floor Tile

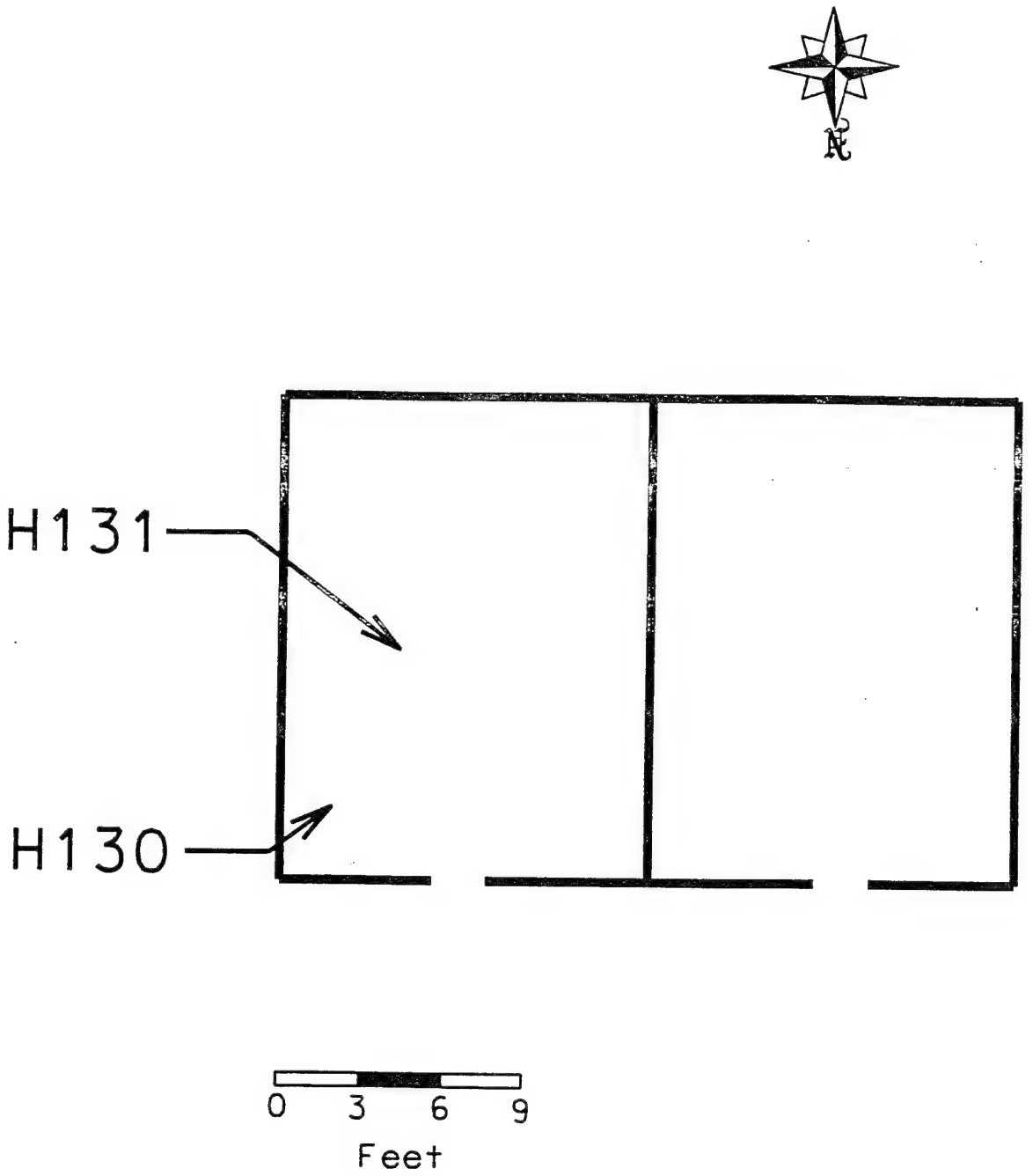
| |
|---|
| Horne Engineering Services, Inc. |
| Building # 202 |
| Floor plan depicting location of asbestos samples |



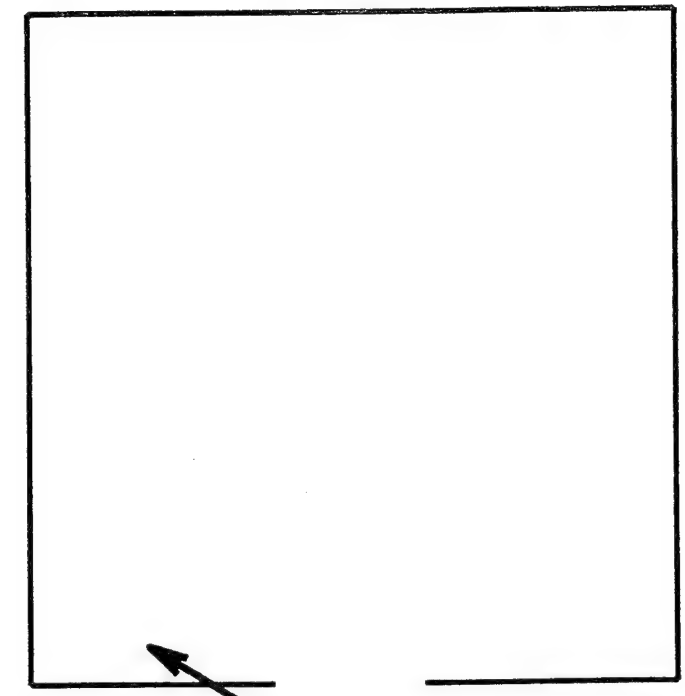

Denotes Assumed ACM/9x9 Floor Tile

ACM (12 x 12 Tan Floor Tile with Orange, Brown, and White Mottling)

| |
|---|
| Horne Engineering Services, Inc. |
| Building # 203 |
| Floor plan depicting location of asbestos samples |

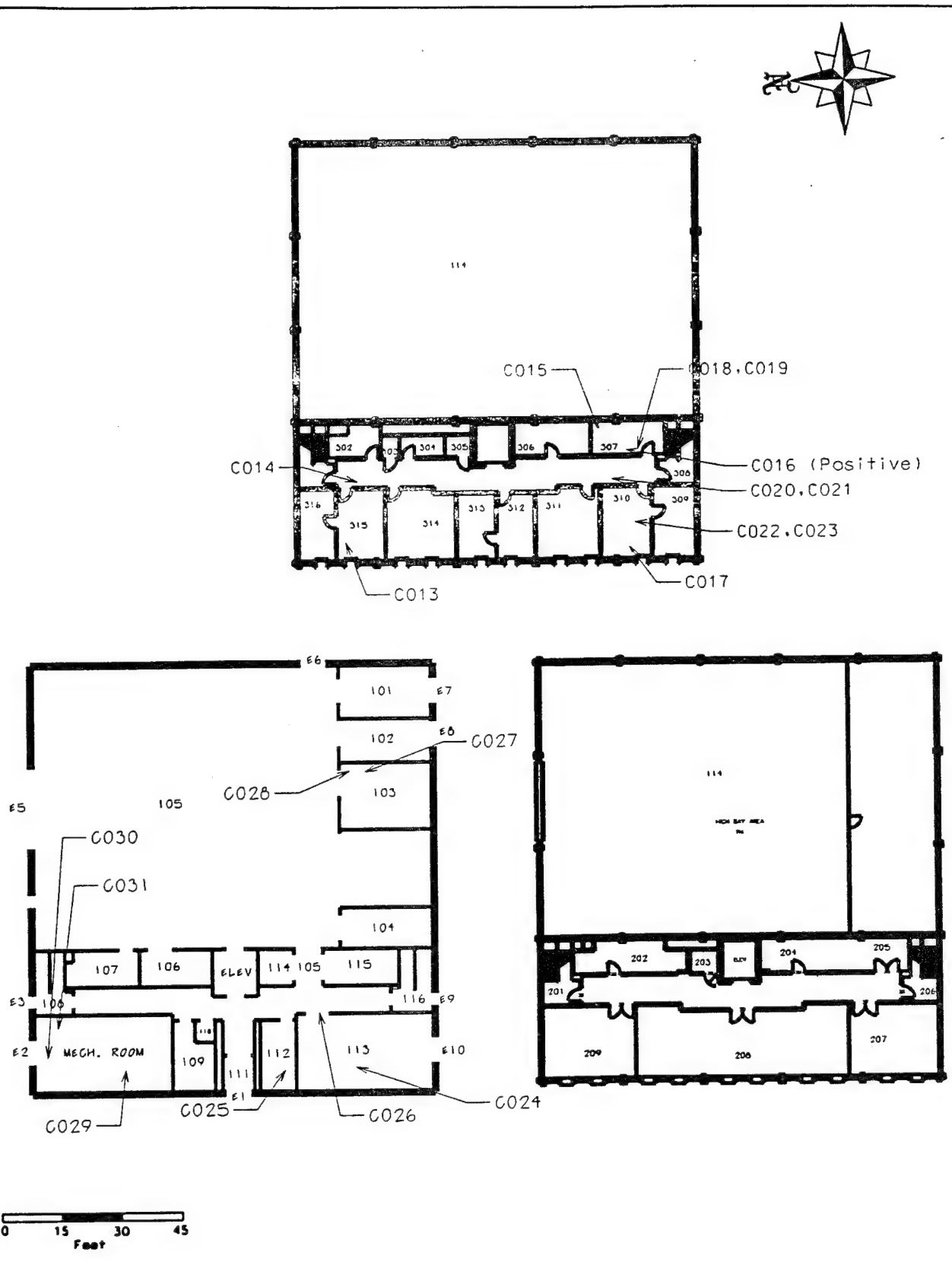



| |
|---|
| Horne Engineering Services, Inc. |
| Building # 204 |
| Floor plan depicting location of asbestos samples |

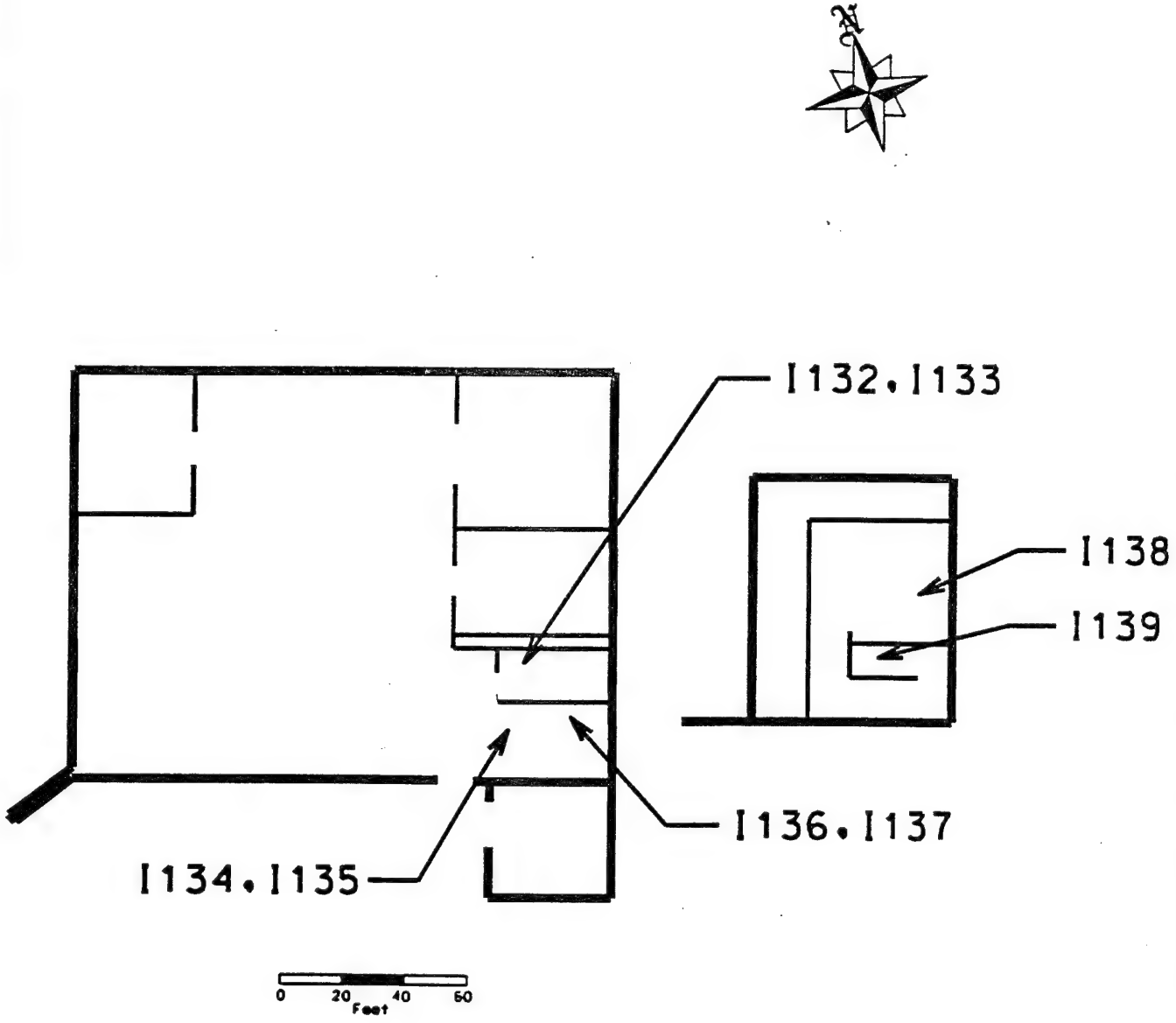



0 1 2 3
Feet

| |
|---|
| Horne Engineering Services, Inc. |
| Building # 210 |
| Floor plan depicting location of asbestos samples |




| |
|---|
| Horne Engineering Services, Inc. |
| Building # 211 |
| Floor plan depicting location of asbestos samples |




| |
|---|
| Horne Engineering Services, Inc. |
| Building # 306 |
| Floor plan depicting location of asbestos samples |

# APPENDIX B

Laboratory analysis results and chain of custody forms (in the attached appendix if provided with this copy)

The laboratory results are also summarized in the body of the report and reflected in the USAEC Asbestos Checklist summary sheets in Appendix C.

If this copy does not have the separately bound chain of custody forms and USAEC checklists, they are available at AEC.

# Oneil M. Banks, Inc.

Industrial Hygiene/Toxicology
(410) 879-4676 / FAX: (410) 879-4686

336 South Main Street
Bel Air, Maryland 21014

August 3, 1995

Mr. Bryant Bullock
Horne Engineering and Environmental Services
4501 Ford Avenue, Suite 1100
Alexandria, VA 22302

Dear Mr. Bullock:

The following are the results of analysis of the sample submitted, for type and amount of asbestos. The analysis was performed using a polarized light optical microscopy and dispersion staining, using the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" found in Appendix A to Subpart F in 40 CFR 763.

DATE COLLECTED: 07/05/95 COLLECTOR: CLIENT ANALYST: RLT
LOCATION: WOODBRIDGE RESEARCH FACILITY DATE ANALYZED: 07/10-07/15/95 &08/03/95

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-003 | A001 Drywall w/ Compound Bldg 102 | NAD | 05-15%CELL<br>05-15%OTHR | 60-70%OTHR |
| 0795-004 | A002 Countertop Mastic Bldg 102 | NAD | ---- | 100%TARA |
| 0795-005 | B003 12x12 Floor Tile Bldg 101 | NAD | 01-10%CELL<br>01-05%SYNC | 75-85%TICO |
| 0795-006 | B004 Floor Tile Mastic Bldg 101 | NAD | 01-10%CELL | 80-90%TARA |
| 0795-007 | B005 12x12 Floor Tile Bldg 101 | NAD | 01-10%CELL | 80-90%TICO |
| 0795-008 | B006 Floor Tile Mastic Bldg 101 | NAD | 01-10%CELL | 80-90%TARA |
| 0795-009 | B007 Drywall/Joint Compound Bldg 101 Rm 102 | NAD | 05-15%OTHR<br>10-20%CELL | 60-70%OTHR |
| 0795-010 | B008 2x4 Ceiling Tile Bldg 101 Rm 103 | NAD | 30-40%CELL<br>30-40%MWOL | 10-20%OTHR |

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-011 | B009 2x4 Ceiling Tile Bldg 101 Lobby | NAD | 30-40%CELL<br>30-40%MWOL | 10-20%OTHR |
| 0795-012 | B010 6" Cove Mold. Bldg 101, Lobby | NAD | ---- | 100%OTHR |
| 0795-013 | B011 Cove Mastic Bldg 101, Lobby | NAD | ---- | 100%TARA |
| 0795-014 | B012 Gasket/ Woven Material Bldg 101, Rm 105 | NAD | 70-80%CELL | 10-20%OTHR |
| 0795-015 | C013 2x4 Ceiling Tile Bldg 211 Room 315 | NAD | 30-40%CELL<br>30-40%FBGL | 10-20%OTHR |
| 0795-016 | C014 2x4 Ceiling Tile Bldg 211, 3rd Floor Hallway | NAD | 30-40%CELL<br>30-40%FBGL | 10-20%OTHR |
| 0795-017 | C015 Drywall Bldg 211 Room 307 | NAD | 15-25%CELL<br>05-10%OTHR | 55-65%OTHR |
| 0795-018 | C016 Duct Binding Material Bldg 211 Room 307 | 10-20%CHRY | 05-10%CELL | 65-75%OTHR |
| 0795-019 | C017 Trowelled on Window Material Bldg 211 Room 310 | NAD | ---- | 100%OTHR |
| 0795-020 | C018 4" Brown Cove Molding Bldg 211 Room 307 | NAD | ---- | 100%OTHR |
| 0795-021 | C019 Cove Mastic Bldg 211 Rm 307 | NAD | ---- | 100%TARA |
| 0795-022 | C020 DELETE-BAB | | | |
| 0795-023 | C021 2x4 Ceiling Tile Bldg 211 3rd Fl Hallway | NAD | 30-40%CELL<br>30-40%MWOL | 10-20%OTHR |
| 0795-024 | C022 12x12 Fl Tile Bldg 211 Rm 310 | NAD | ---- | 100%TICO |
| 0795-025 | C023 Fl Tile Mastic Bldg 211 Rm 310 | NAD | 01-10%CELL | 80-90%TARA |

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-026 | C024 12x12 Floor Tile Bldg 211 Rm 113 | NAD | 10-15%CELL | 75-85%TICO |
| 0795-027 | C025 Ceiling Dry-wall, Bldg 211 Room 112 | NAD | 10-20%OTHR | 70-80%OTHR |
| 0795-028 | C026 Fire Door Ins. Bldg 211 Rm 113 | NAD | 100%FBGL | ---- |
| 0795-029 | C027 Brown Mastic Bldg 211 Rm 103 | NAD | ---- | 100%TARA |
| 0795-030 | C028 3'x3' Floor Tile Bldg 211 Room 103 | NAD | ---- | 100%TICO |
| 0795-031 | C029 Duct Mastic Material/Mech Room | NAD | 20-30%SYNC | 60-70%TARA |
| 0795-032 | C030 Trowelled Ceiling Material Mech. Room | NAD | 01-05%CELL | 85-95%OTHR |
| 0795-033 | C031 Boiler Jacket Insulation Mech Rm | NAD | 55-65%MWOL | 25-35%OTHR |
| 0795-034 | D032 12x12 Floor Tile Bldg 203 Main Entrance | <1%CHRY | 01-10%CELL | 80-90%TICO |
| 0795-035 | D033 Floor Tile Mastic Bldg 203 Main Entrance | NAD | 01-10%CELL | 80-90%OTHR |
| 0795-036 | D034 Stair Case Tread Bldg 203 Main Entrance | NAD | ---- | 100%OTHR |
| 0795-037 | D035 Stair Tread Mastic Bldg 203 Main Entrance | NAD | ---- | 100%TARA |
| 0795-038 | D036 Plaster Wall Material Bldg 203 Room 117 | NAD | 01-05%CELL<br>01-05%SYNC | 80-90%OTHR |
| 0795-039 | D037 Drywall Compound Over Plas. Bldg 203 Rm 117 | NAD | 01-05%CELL | 90-95%OTHR |

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-040 | D038 Acoustical Tile 12x16 Bldg 203 Room 124 | NAD | ---- | 100%TARA |
| 0795-041 | D039 Acoustical Tile Mastic | NAD | ---- | 100%OTHR |
| 0795-042 | D041 2'x2' Floor Tile Bldg 203 Room 124 | NAD | 05-15%CELL | 75-85%TICO |
| 0795-043 | D042 Cove Moulding Main Entrance Bldg 203 | NAD | ---- | 100%OTHR |
| 0795-044 | D043 Cove Moulding Mastic/Outer | NAD | ---- | 100%TARA |
| 0795-045 | D044 Cove Moulding Mastic/Inner | NAD | 01-10%CELL | 80-90%TARA |
| 0795-046 | D045 Plaster Wall Material Bldg 203 Room 108 | NAD | ---- | 100%OTHR |
| 0795-047 | D046 Drywall Compound O/Plaster Bldg 203 Rm 108 | NAD | ---- | 100%OTHR |
| 0795-048 | D047 Drywall Bldg 203 Room 108 | NAD | 05-10%OTHR<br>10-20%CELL | 60-70%OTHR |
| 0795-049 | D048 Duct Binding Material(Tan) Bldg 203 Rm 102 | NAD | ---- | 100%OTHR |
| 0795-050 | D049 Duct Binding Material(White) Bldg 203 Rm 102 | 5-10%CHRY | 05-10%CELL | 70-80%OTHR |
| 0795-051 | D050 Brown Mastic on Ceiling Bldg 203 Room 102 | NAD | 01-10%CELL | 80-90%TARA |
| 0795-052 | D051 2x4 Ceiling Tile Bldg 203 Room 102 | NAD | 40-50%CELL<br>20-30%FBGL | 10-20%OTHR |
| 0795-053 | D052 4" Black Cove Molding Bldg 203 Room 125 | NAD | ---- | 100%OTHR |

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-054 | D053 Black Cove Mastic Bldg 203 Room 125 | NAD | 05-10%CELL | 80-90%TARA |
| 0795-055 | D054 4" Brown Cove Molding Bldg 203 Room 124 | NAD | ---- | 100%OTHR |
| 0795-056 | D055 Brown Cove Mastic | NAD | 01-05%CELL | 90-95%TARA |
| 0795-057 | D056 Drywall Bldg 203 Rm 125 | NAD | 05-10%OTHR<br>20-30%CELL | 50-60%OTHR |
| 0795-058 | D057 Ceiling Plast. Bldg 203 Rm 225 Tan Cemen. Layer | NAD | 01-10%CELL | 80-90%OTHR |
| | White Painted Layer | NAD | ---- | 100%OTHR |
| | White Chalky Layer | NAD | ---- | 100%OTHR |
| 0795-059 | D058 Black Duct Binding Bldg 203 Room 225 | 05-10%CHRY | 05-10%CELL | 70-80%OTHR |
| 0795-060 | D059 6" Black Cove Molding Bldg 203 Room 224 | NAD | ---- | 100%OTHR |
| 0795-061 | D061 Brown Mastic Bldg 203 Rm 224 | NAD | ---- | 100%TARA |
| 0795-062 | D062 Black Mastic on Cork Bldg 203 Room 219 | NAD | ---- | 100%OTHR |
| 0795-063 | D063 2x4 Ceiling Tile Bldg 203 2nd Fl Hall | NAD | 40-50%CELL<br>20-30%MWOL | 10-20%OTHR |
| 0795-064 | D064 2x4 Ceiling Tile Bldg 203 2nd Fl Hall | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-065 | D065 2x4 Ceiling Tile Bldg 203 2nd Fl Hall | NAD | 20-30%MWOL<br>20-30%FBGL | 30-40%OTHR |
| 0795-066 | DO66 Drywall Bldg 203 Rm 210 | NAD | 10-20%CELL<br>10-20%SYNC | 50-60%OTHR |

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-067 | D067 Drywall | NAD | 10-20%CELL<br>05-10%SMNC | 60-70%OTHR |
| 0795-068 | D068 2x4 Ceiling Tile Bldg 203 Room 210 | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-069 | D069 Press Board Bldg 203 Rm 202 | NAD | 90-95%CELL | 01-05%OTHR |
| 0795-070 | E070 2x4 Ceiling Tile Bldg 201 Room 106 | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-071 | E071 2x4 Ceiling Tile Bldg 201 Room 106 | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-072 | E072 Drywall Bldg 201 Rm 106 | NAD | 05-10%OTHR<br>10-20%CELL | 60-70%OTHR |
| 0795-073 | E073 Debris in Steamline Chase Bldg 201 Rm 106 | NAD | 10-20%OTHR<br>20-30%SYNC<br>10-20%CELL<br>05-10%FBGL | 10-20%OTHR |
| 0795-074 | E074 12"x12" Floor Tile Bldg 201 Main Ent. | 01-10%CHRY | 01-10%OTHR | 70-80%OTHR |
| 0795-075 | E075 2x4 Ceiling Tile Bldg 201 Main Entrance | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-076 | E076 Brown Mastic Bldg 201 Main Ent. | NAD | ---- | 100%TARA |
| 0795-077 | E077 Primary Ceil. Material Bldg 201 Room N101A | NAD | 10-20%CELL<br>05-15%OTHR | 55-65%OTHR |
| 0795-078 | E078 Plaster Wall Material Bldg 201 Room N101 | NAD | 10-20%CELL | 70-80%OTHR |
| 0795-079 | E079 Drywall Comp. Over Plaster Bldg 201 Room N101 | NAD | ---- | 100%OTHR |
| 0795-080 | E081 TSI Pipe Sealant Rm N101A | NAD | ---- | 100%OTHR |

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-081 | E082 12"x 12" Acoustical Tile Bldg 201 Rm N107A | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-082 | E083 Brown Mastic Bldg 201 Rm N107A | NAD | ---- | 100%TARA |
| 0795-083 | E084 2x4 Ceiling Tile Bldg 201 Rm N107A | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-084 | E085 2x4 Ceiling Tile Bldg 201 Room N107A | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-085 | E086 2x4 Ceiling Tile Bldg 201 Room N107B | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-086 | E087 4" Black Cove Molding O/S Rm N107A | NAD | ---- | 100%OTHR |
| 0795-087 | E088 Brown Mastic | NAD | ---- | 100%TARA |
| 0795-088 | E089 6" Black Cove Molding Bldg 201 Room N109 | NAD | ---- | 100%OTHR |
| 0795-089 | E090 Cove Brown Mastic | NAD | 05-10%OTHR | 80-90%TARA |
| 0795-090 | E091 Plaster Wall Bldg 201 Rm N111 | NAD | 05-10%CELL | 80-90%OTHR |
| 0795-091 | E092 Debris in Electrical Chase Rm N111 | NAD | 05-10%CELL<br>05-10%SYNC | 70-80%OTHR |
| 0795-092 | E093 Drywall Rm N116 Bldg 201 | NAD | 05-15%CELL<br>05-15%SYNC | 60-70%OTHR |
| 0795-093 | E094 Brown Mastic Bldg 201 Rm N118 | NAD | ---- | 100%TARA |
| 0795-094 | E095 12"x12" Floor Tile Bldg 201 Room N118 | NAD | 01-10%CELL | 80-90%TICO |
| 0795-095 | E096 Drywall, Hall North Wing | NAD | 10-20%CELL<br>05-10%OTHR | 60-70%OTHR |

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-096 | E097 4" Brown Cove Molding Bldg 201 Room E157 | NAD | ---- | 100%OTHR |
| 0795-097 | E098 Brown Cove Mastic | NAD | ---- | 100%TARA |
| 0795-098 | E099 Drywall Bldg 201 Rm E157 | NAD | 10-20%CELL 05-10%OTHR | 60-70%OTHR |
| 0795-099 | E101 12"x12" Acoustical Tile Bldg 201 Rm E169 | NAD | 80-85%FBGL | 10-15%OTHR |
| 0795-100 | E102 Brown Mastic Bldg 201 Rm E169 | NAD | ---- | 100%TARA |
| 0795-101 | E103 12"x12" Acoustical Tile Bldg 201 Rm E169 | NAD | 80-90%CELL | 01-10%OTHR |
| 0795-102 | E104 12"x12" Floor Tile Bldg 201 Room E169 | NAD | 01-05%CELL | 90-95%TICO |
| 0795-103 | E105 Wall Plaster Bldg 201 Rm E166 | NAD | 05-10%CELL | 80-90%OTHR |
| 0795-104 | E106 Particle Board Mastic Rm E168 | NAD | ---- | 100%TARA |
| 0795-105 | E107 Duct Binding Material Rm E166 | 05-15%CHRY | 05-10%OTHR | 65-75%OTHR |
| 0795-106 | E108 Drywall Rm. E166 | NAD | 10-20%CELL 05-10%OTHR | 60-70%OTHR |
| 0795-107 | E109 Plaster Wall Rm. E166 | NAD | 05-10%CELL | 80-90%OTHR |
| 0795-108 | E110 Drywall S. Wing Hall | NAD | 05-10%SYNC 10-20%CELL | 60-70%OTHR |
| 0795-109 | E111 2x4 Ceiling Tile W. Wing Hall | NAD | 20-30%FBGL 20-30%CELL | 30-40%OTHR |
| 0795-110 | E112 Drywall Rm. W148 | NAD | 10-20%CELL 05-10%OTHR | 60-70%OTHR |
| 0795-111 | E113 2x4 Ceiling Tile Rm W151 | NAD | 20-30%CELL 20-30%FBGL | 30-40%OTHR |

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-112 | E114 4" Brown Cove Molding Rm W140 | NAD | ---- | 100%TARA |
| 0795-113 | E115 2x4 Ceiling Tile Main Entrance | NAD | 20-30%CELL<br>20-30%FBGL | 30-40%OTHR |
| 0795-114 | F116 4" Black Cove Molding Bldg 202 Room 121 | NAD | ---- | 100%OTHR |
| 0795-115 | F117 Cove Molding Mastic | NAD | ---- | 100%TARA |
| 0795-116 | F118 Gray Fibrous Material Above 118 Bldg 202 | NAD | 05-10%OTHR<br>60-70%MWOL | 10-20%OTHR |
| 0795-117 | F119 Drywall Rm. 115 | NAD | 01-10%OTHR<br>10-20%CELL | 60-70%OTHR |
| 0795-118 | F121 12"x 12" Acoustical Tile Room 103C Bldg 202 | NAD | 70-80%FBGL | 10-20%OTHR |
| 0795-119 | F122 Ceiling Drywall Rm 101 | NAD | 10-20%CELL<br>05-10%OTHR | 60-70%OTHR |
| 0795-120 | F123 12"x 12" Floor Tile Rm 101 | 05-10%CHRY | ---- | 80-90%TICO |
| | F123 Mastic | 01-05%CHRY | 01-05%OTHR | 80-90%TARA |
| 0795-121 | F124 Drywall Ceil Board Rm 103C | NAD | 05-10%OTHR<br>10-20%CELL | 60-70%OTHR |
| 0795-122 | F125 4" Black Cove Molding Rm 114 | NAD | ---- | 100%OTHR |
| 0795-123 | F126 Cove Molding Mastic Rm 114 | NAD | ---- | 100%TARA |
| 0795-124 | F127 Drywall Rm 120 | NAD | 10-20%CELL<br>05-10%OTHR | 60-70%OTHR |
| 0795-125 | G128 12"x 12" Floor Tile Bldg 210 | NAD | ---- | 100%TICO |
| 0795-126 | G129 Floor Tile Mastic Bldg 210 | NAD | ---- | 100%TARA |
| 0795-127 | H130 Concrete Floor Bldg 204 | NAD | ---- | 100%OTHR |

ESTIMATED PERCENT COMPOSITION OF MATERIAL

| LAB NO. | DESCRIPTION | %ASBESTOS | %OTHER FIBERS | %NON-FIBERS |
|---|---|---|---|---|
| 0795-128 | H131 Concrete Ceiling Bldg 204 | NAD | ---- | 100%OTHR |
| 0795-129 | I132 12"x 12" Floor Tile, 1st Floor Bthrm Bldg 306 | NAD | ---- | 100%TICO |
| 0795-130 | I133 Floor Tile Mastic/Bthrm Bldg 306 | NAD | 05-10%CELL | 80-90%TARA |
| 0795-131 | I134 Stair Tread Between 1st/2nd Floor Bldg 306 | NAD | ---- | 100%OTHR |
| 0795-132 | I135 Stair Tread Mastic Bldg 306 | NAD | ---- | 100%TARA |
| 0795-133 | I136 4" Brown Cove Molding/Maint. Bay Bldg 306 | NAD | ---- | 100%OTHR |
| 0795-134 | I137 Brown Mastic Maint. Bay Bldg 306 | NAD | ---- | 100%TARA |
| 0795-135 | I138 Drywall 2nd Floor Bldg 306 | NAD | 10-20%CELL<br>10-20%SYNC | 50-60%OTHR |
| 0795-136 | I139 Drywall Stairway Bldg 306 | NAD | 10-20%CELL<br>05-10%SYNC | 60-70%OTHR |
| 0795-137 | X141 Old Chimney Culvert | NAD | ---- | 100%OTHR |
| 0795-138 | X142 TSI Exterior Bldg 203 Southside | NAD | 05-10%CELL<br>20-30%SYNC | 50-60%OTHR |

**ASBESTOS TYPE**
NAD=No Asbestos Det.
CHRY=Chrysotile Asb.
CROC=Crocidolite Asb.
AMOS=Amosite Asbestos
TREM=Tremolite Asb.
ACTI=Actinolite Asb.
ATHO=Anthophyllite Asb.

**OTHER FIBERS**
CELL=Cellulose
FBGL=Fiberglass
MWOL=Mineral wool
POLY=Polyester
SYNT=Synthetic
OTHR=Other
NONE=None

**NON-FIBER TYPES**
CACO=Calcium Carbonate
CASO=Calcium Sulfate
MICA=Mica
TICO=Tile components
TARA=Tar/Adhesive
OTHR=Other
NONE=None

A representative of this Company has conducted an evaluation including sample preparation and analysis to determine the presence, type and amount of asbestos in the samples collected and submitted by the client. This evaluation relates only to the samples tested and did not include verification of data supplied by the client as to sample source. This Company shall not be liable for any use of this report beyond the scope of the above limitation.

Yours very truly,

Oneil M. Banks

| Woodbridge Research Facility USAEC Checklist Summary | | | | | Part I Damage Assess | | | | | | | | Part II Exposure Assess | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Prox to repair | | | | | | | | | | | | | |
| Sample | Number | Building | Room | Description | | Physical | Water | A.Spray/Trowel | B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| A | 001 | 102 | NA | Painted Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 1 | | 8 | F |
| A | 002 | 102 | NA | Tan Countertop Mastic | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 1 | | 8 | F |
| B | 003 | 101 | 102 | 12"x12" Floor Tile (Gray with White and Gray Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 004 | 101 | 102 | 12"x12" Floor Tile Mastic (Gray with White and Gray Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 005 | 101 | NA | 12"x12" Floor Tile (Gray with White and Gray Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 006 | 101 | NA | Black Mastic from 12"x12" Floor Tile (Gray with White and Gray Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 007 | 101 | 102 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 008 | 101 | 103 | 2'x4' Ceiling Tile (Marble Pattern w/Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| B | 009 | 101 | NA | 2'x4' Ceiling Tile (Marble Pattern w/Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| B | 010 | 101 | NA | 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 011 | 101 | NA | Black Mastic from 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 012 | 101 | 105 | Duct Gasketing Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 013 | 211 | 315 | 2'x4' Ceiling Tile (Wormy Pattern w/Large Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 014 | 211 | Hall | 2'x4' Ceiling Tile (Wormy Pattern w/Small Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| C | 015 | 211 | 307 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 016 | 211 | 307 | White Duct Glue | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 0 | 1 | 2 | 0 | 2 | | 5 | F |
| C | 017 | 211 | 310 | Troweled Window Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 018 | 211 | 307 | 4" High Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 1 | | 9 | F |
| C | 019 | 211 | 307 | Black Mastic from 4" High Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 020 | | | Duplicate of C021 | | | | | | | | 0 | | | | | | | | | 0 | F |
| C | 021 | 211 | Hall | 2'x4' Ceiling Tile (Random Mottled Pattern w/Small Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 022 | 211 | 310 | 12"x12" Floor Tile (Light Tan w/Brown Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 023 | 211 | 310 | Brown Mastic from 12"x12" Floor Tile (Light Tan w/Brown Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 024 | 211 | 113 | 12"x12" Floor Tile (Beige w/Brown and White | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 0 | 0 | 2 | | 9 | F |
| C | 025 | 211 | 112 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 0 | 0 | 2 | | 9 | F |
| C | 026 | 211 | 113 | Fire Door Insulation | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 027 | 211 | 103 | Brown Mastic from Wall | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| C | 028 | 211 | 103 | 3'x3' Floor Tile | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| C | 029 | 211 | Mech. Room | Duct Gasketing Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |

| Woodbridge Research Facility USAEC Checklist Summary | | | | | Part I Damage Assess | | | | | | | | Part II Exposure Assess | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Prox to repair | | | | | | | | | | | | | |
| Sample | Number | Building | Room | Description | | Physical | Water | A.Spray/Trowel | B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| C | 030 | 211 | Mech. Room | Troweled Material on Ceiling | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| C | 031 | 211 | Mech. Room | Boiler Jacket Insulation | | 0 | 0 | 0 | 3 | 0 | 0 | 3 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| D | 032 | 203 | Main Ent. | 12"x12" Floor Tile (Tan w/Orange, Brown, and White Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 033 | 203 | Maint. | Black Mastic from 12"x12" Floor Tile (Tan w/Orange, Brown, and White Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 034 | 203 | Main Ent. | Staircase Tread | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 035 | 203 | Main Ent. | Mastic from Staircase Tred | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 036 | 203 | 117 | Tan Plaster Base Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 037 | 203 | 117 | White Drywall Material Over Tan Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 038 | 203 | 124 | Brown Mastic from 12"x16" Acoustical Tile (3/8" Dot Pattern) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 039 | 203 | 124 | 12"x16" Acoustical Tile (3/8" Dot Pattern) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 040 | | | Duplicate of D041 | | | | | | | | 0 | | | | | | | | | 0 | F |
| D | 041 | 203 | 124 | 2' x 2' Floor Tile | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 042 | 203 | Main Ent. | 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 043 | 203 | Main Ent. | Tan Mastic from 6" Black Cove Molding (Outer Layer) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 044 | 203 | Main Ent. | Black Mastic from 6" Black Cove Molding (Inner Layer) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 045 | 203 | 108 | Tan Plaster Base Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 046 | 203 | 108 | White Drywall Material Over Tan Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 047 | 203 | 108 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 048 | 203 | 102 | Tan Duct Glue | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 1 | 0 | 2 | | 4 | F |
| D | 049 | 203 | 102 | White Duct Glue | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 0 | 1 | 2 | 0 | 2 | | 5 | F |
| D | 050 | 203 | 102 | Brown Mastic | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 3 | 1 | 0 | 2 | | 6 | F |
| D | 051 | 203 | 102 | 2'x4' Ceiling Tile (Mottled Pattern w/Small Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 052 | 203 | 125 | 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 053 | 203 | 125 | Brown Mastic from 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 054 | 203 | 124 | 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 055 | 203 | 124 | Brown Mastic from 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 056 | 203 | 225 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 057 | 203 | 225 | Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 3 | 1 | 0 | 2 | | 6 | F |
| D | 058 | 203 | 225 | Black Duct Glue | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 0 | 3 | 2 | 0 | 2 | | 7 | F |
| D | 059 | 203 | 224 | 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 060 | | | Duplicate of D061 | | | | | | | | 0 | | | | | | | | | 0 | F |

| Woodbridge Research Facility USAEC Checklist Summary | | | | | Part I Damage Assess | | | Prox to repair | | | | | Part II Exposure Assess | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | Number | Building | Room | Description | | Physical | Water | A.Spray/Trowel | B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| D | 061 | 203 | 224 | Brown Mastic from 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 062 | 203 | 219 | Brown Mastic from Corkboard | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 063 | 203 | 2nd Floor Hall | 2'x4' Ceiling Tile (Mottled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 064 | 203 | 2nd Floor Hall | 2'x4' Ceiling Tile (Marbled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 065 | 203 | 2nd Floor Hall | 2'x4' Ceiling Tile (Wormy Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 066 | 203 | 210 | Beige, Painted (2 coats) Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 067 | 203 | 205 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 068 | 203 | 210 | 2'x4' Ceiling Tile (Mottled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 069 | 203 | 202 | Tan Pressboard | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 070 | 201 | N106 | 2'x4' Ceiling Tile (Mottled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 071 | 201 | N106 | 2'x4' Ceiling Tile (Marbled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 072 | 201 | N106 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 073 | 201 | N106 | Debris in Steamline Chase | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 1 | 0 | 2 | | 4 | F |
| E | 074 | 201 | Lobby | 12"x12" Floor Tile (Beige w/White and Gray Mottling) | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 3 | 2 | 0 | 2 | | 11 | E |
| E | 075 | 201 | Hall | 2'x4' Ceiling Tile (Pocked w/Small and Large Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 076 | 201 | Hall | Brown Mastic | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 077 | 201 | N101A | 4'x8' Primary Ceiling | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 1 | 0 | 2 | | 4 | F |
| E | 078 | 201 | N101A | Tan Plaster Wall Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 3 | 4 | 3 | 1 | 0 | 2 | | 13 | F |
| E | 079 | 201 | N101 | Drywall Plaster Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 3 | 4 | 3 | 1 | 0 | 2 | | 13 | F |
| E | 080 | | | Duplicate of E081 | | | | | | | | 0 | | | | | | | | | 0 | F |
| E | 081 | 201 | N101A | White Thermal System Pipe Sealant | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| E | 082 | 201 | N107A | 12"x12" Acoustical Tile (1/2" Dot Pattern) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 083 | 201 | N107A | Brown Mastic from 12"x12" Acoustical Tile (1/2" Dot Pattern) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 084 | 201 | N107A | 2'x4' Ceiling Tile (Straight Wormy Pattern w/Small and Large Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 085 | 201 | N107B | 2'x4' Ceiling Tile (Marbled w/Many Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 086 | 201 | N107C | 2'x4' Ceiling Tile (Bone Colored, Marbled, w/Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 087 | 201 | N107 | 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |

| Woodbridge Research Facility USAEC Checklist Summary | | | | | Part I Damage Assess | | | | | | | | Part II Exposure Assess | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | Number | Building | Room | Description | | Physical | Water | Prox to repair A.Spray/Trowel | Prox to repair B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| E | 088 | 201 | N107 | Brown Mastic from 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 089 | 201 | N109 | 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 090 | 201 | N109 | Brown Mastic from 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 3 | 4 | 3 | 1 | 0 | 2 | | 13 | F |
| E | 091 | 201 | N111 | Plaster Wall | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 2 | 1 | 0 | 1 | | 5 | F |
| E | 092 | 201 | N101 | Electrical Chase Debris | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 1 | 0 | 1 | | 2 | F |
| E | 093 | 201 | N116 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 094 | 201 | N118 | Brown Mastic Above Ceiling | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 1 | 0 | 2 | | 4 | F |
| E | 095 | 201 | N118 | 12"x12" Floor Tile (Beige w/Brown and White | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 096 | 201 | W154 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 3 | | 11 | F |
| E | 097 | 201 | E157 | 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 098 | 201 | E157 | Mastic from 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 099 | 201 | E157 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 100 | | | Duplicate of E101 | | | | | | | | 0 | | | | | | | | | 0 | F |
| E | 101 | 201 | E169 | 12"x12" White Acoustical Tile (1" Dot Spacing) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 102 | 201 | E169 | Brown Mastic from 12"x12" White Acoustical Tile (1" Dot Spacing) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 103 | 201 | E166 | 12"x12" White Acoustical Tile (1/2" spacing) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 104 | 201 | E166 | 12"x12" Floor Tile (Beige w/White and Gray Mottling) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 105 | 201 | E166 | Wall Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 106 | 201 | E168 | Particle Board Tan Mastic | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 1 | | 9 | F |
| E | 107 | 201 | E166 | White Duct Glue | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 3 | 2 | 0 | 2 | | 11 | E |
| E | 108 | 201 | E166 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 109 | 201 | E166 | Green Painted Wall Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 110 | 201 | Hall (S120) | Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 111 | 201 | Hall (W148) | 2'x4' Ceiling Tile (Mottled w/Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 112 | 201 | W148 | Painted Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 113 | 201 | W151 | 2'x4' Ceiling Tile (Pocked w/Small and Large Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 114 | 201 | W140 | 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 115 | 201 | Maint. | 2'x4' Ceiling Tile (Wormy w/Large Pinholes and Woven Texture) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 116 | 202 | 121 | 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 117 | 202 | 121 | Brown Mastic from 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 118 | 202 | 117 | Gray, Fibrous Debris | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| F | 119 | 202 | 115 | Painted Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |

| Woodbridge Research Facility USAEC Checklist Summary | | | | | Part I Damage Assess | | | | | | | | Part II Exposure Assess | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Prox to repair | | | | | | | | | | | | | | |
| Sample | Number | Building | Room | Description | | Physical | Water | A.Spray/Trowel | B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| F | 120 | | | Duplicate of F121 | | | | | | | | 0 | | | | | | | | | 0 | F |
| F | 121 | 202 | 103C | 12"x12" White Acoustical Tile w/Small Pinholes | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 1 | | 9 | F |
| F | 122 | 202 | 101 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 1 | | 8 | F |
| F | 123 | 202 | 101 | 12"x12" Floor Tile (Green and Gray w/White Streaks) | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 2 | 2 | 0 | 1 | | 9 | E |
| F | 123A | 202 | 101 | Black Mastic from 12"x12" Floor Tile (Green and Gray w/White Streaks) | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 2 | 2 | 0 | 1 | | 9 | E |
| F | 124 | 202 | 103C | Ceiling Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 125 | 202 | 114 | 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 126 | 202 | 114 | Brown Mastic from 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 127 | 202 | 120 | Drywall | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| G | 128 | 210 | NA | 12"x12" Floor Tile (Beige w/Black & White Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| G | 129 | 210 | NA | Tan Mastic from 12"x12" Floor Tile (Beige w/Black & White Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| H | 130 | 204 | NA | Concrete Floor | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 0 | 1 | 0 | 1 | | 6 | F |
| H | 131 | 204 | NA | Concrete Ceiling | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 0 | 1 | 0 | 1 | | 6 | F |
| I | 132 | 306 | NA | 12"x12" Floor Tile (Rust Color w/Brown and Cream Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 2 | | 9 | F |
| I | 133 | 306 | NA | Mastic from 12"x12" Floor Tile (Rust Color w/Brown and Cream Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 2 | | 9 | F |
| I | 134 | 306 | NA | Brown Stair Tread | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 135 | 306 | NA | Brown Mastic from Brown Stair Tread | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 136 | 306 | NA | 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 137 | 306 | NA | Mastic from 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 138 | 306 | NA | Painted Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 139 | 306 | NA | Painted Drywall | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| X | 140 | | | Duplicate of X-141 | | | | | | | | 0 | | | | | | | | | 0 | F |
| X | 141 | NA | NA | Culvert/Old Chimney | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| X | 142 | 203 | NA | Thermal Insulation at South End Exterior | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| NA | NA | 101 201 202 203 | NA | General Assessment of All 9"x9" Floor Tile Assumed To Be ACM per the Scope of Work | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 3 | 2 | 0 | 2 | | 11 | E |
| NA | NA | 203 | 108 | 9"x9" Floor Tile | | 0 | 2 | 0 | 0 | 1 | 0 | 3 | | 0 | 4 | 3 | 2 | 1 | 2 | | 12 | E |

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

July 24, 1995



Mr. Bryant Bullock
Horne Engineering Services, Inc.
4401 Ford Avenue
Suite 1100
Alexandria, VA 22302

Subject: **Bulk Sample Analysis**
**Woodbridge Research Facility**
**LAW Project 20340-5-0639**

Dear Mr. Bullock:

Law Engineering and Environmental Services, Inc. (LAW) has completed the analysis of the building material samples submitted on July 11, 1995. Attached are the Chain of Custody, Summary of Sample Analysis, and the Bulk Sample Analysis Sheets.

The samples were analyzed using Polarized Light Microscopy (PLM) coupled with dispersion staining techniques as outlined in The Environmental Protection Agency's "Interim Method for Determination of Asbestos in Material Insulation Samples" (EPA-600/M4-82-020, December 1982), with the following exceptions: High dispersion refractive index oils were used when appropriate and quantification of components was performed by visual estimate.

LAW appreciates this opportunity to serve Horne Engineering Services, Inc.. If you have any questions concerning this report, please do not hesitate to contact us.

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

Ronald M. Combs
Laboratory Manager, Facilities Environmental Services

Paul J. Bruner, Jr., P.E.
Principal Engineer

RMC/PJB:alm

# CHAIN OF CUSTODY

## LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

4465 BROOKFIELD CORPORATE DRIVE
CHANTILLY, VIRGINIA 22021

PROJECT: WOODBRIDGE RESEARCH FACILITY — LAW PROJECT NUMBER: 20340-5-0639
CLIENT: HORNE ENGINEERING SERVICES, INC.
DATE: JULY 5, 1995
INSPECTOR: B. BULLOCK

| FIELD SAMPLE NUMBER | SAMPLE TYPE | SAMPLE LOCATION | LAB SAMPLE NUMBER |
|---|---|---|---|
| CO20 | 2'X4' CEILING TILE | BUILDING 211, 3RD FLOOR HALL | WA 23961 |
| DO40 | 2'X2' FLOOR TILE | BUILDING 203, ROOM 124 | WA 23962 |
| DO60 | BROWN MASTIC | BUILDING 203, ROOM 224 | WA 23963 |
| EO80 | THERMAL SYSTEM PIPE SEALANT | BUILDING 201, ROOM N101A | WA 23964 |
| E100 | 12"X12" ACOUSTICAL TILE | BUILDING 201, ROOM E169 | WA 23965 |
| F120 | 12"X12" ACOUSTICAL TILE | BUILDING 202, ROOM 103C | WA 23966 |
| X140 | CULVERT/OLD CHIMNEY LINER | NA | WA 23967 |
| ----- | ---------- | ---------- | ----- |
| ----- | ---------- | ---------- | ----- |
| ----- | ---------- | ---------- | ----- |
| ----- | ---------- | ---------- | ----- |
| ----- | ---------- | ---------- | ----- |
| ----- | ---------- | ---------- | ----- |
| ----- | ---------- | ---------- | ----- |
| ----- | ---------- | ---------- | ----- |

| FIELD COLLECTION | 1ST TRANSFER | 2ND TRANSFER |
|---|---|---|
| INSPECTOR: B. BULLOCK | FACILITY: LAW ENGINEERING ASBESTOS LABORATORY | FACILITY: |
| SIGNATURE: | NAME: RONALD M. COMBS | NAME: |
| DATE: JULY 5, 1995 | SIGNATURE: Ronald M. Combs | SIGNATURE: |

## TABLE 1
## ASBESTOS BULK SAMPLE ANALYSIS
## FOR
## WOODBRIDGE RESEARCH FACILITY

LAW PROJECT NUMBER: 20340-5-0639

| FIELD SAMPLE NUMBER | LAB SAMPLE NUMBER | SAMPLE TYPE/COLOR | LOCATION | RESULTS OF PLM ANALYSIS |
|---|---|---|---|---|
| CO20 | WA 23961 | 2'X4' CEILING TILE | BUILDING 211, 3RD FLOOR HALL | NONE DETECTED |
| DO40 | WA 23962 | 2'X2' FLOOR TILE | BUILDING 203, ROOM 124 | NONE DETECTED |
| DO60 | WA 23963 | BROWN MASTIC | BUILDING 203, ROOM 224 | NONE DETECTED |
| EO80 | WA 23964 | THERMAL SYSTEM PIPE SEALANT | BUILDING 201, ROOM N101A | NONE DETECTED |
| E100 | WA 23965 | 12"X12" ACOUSTICAL TILE | BUILDING 201, ROOM E169 | NONE DETECTED |
| F120 | WA 23966 | 12"X12" ACOUSTICAL TILE | BUILDING 202, ROOM 103C | NONE DETECTED |
| X140 | WA 23967 | CULVERT/OLD CHIMNEY LINER | NA | NONE DETECTED |
| ----- | ----- | ---------- | ---------- | ---------- |
| ----- | ----- | ---------- | ---------- | ---------- |
| ----- | ----- | ---------- | ---------- | ---------- |
| ----- | ----- | ---------- | ---------- | ---------- |
| ----- | ----- | ---------- | ---------- | ---------- |
| ----- | ----- | ---------- | ---------- | ---------- |
| ----- | ----- | ---------- | ---------- | ---------- |
| ----- | ----- | ---------- | ---------- | ---------- |

** Materials containing asbestiform minerals – The percent of various material components was estimated visually by the microscopist during the analysis. Polarized Light Microscopy (PLM) coupled with dispersion staining was the method of identification used.*

*Floor tile and other resinously bound materials, when analyzed by the EPA method, may yield false negative results because of limitations in separating closely bound fibers and in detecting fibers of small length and diameter. When a definitive result is required, LAW recommends utilizing alternative methods of identification, including Tranmission Electron Microscopy.*

*The results of these analyses should not be used as a scope of work for abatement without consulting LAW.*

VA. LAB LICENSE #: 3333000010 NVLAP #: 1847

# BULK SAMPLE ANALYSIS
## LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

4465 BROOKFIELD CORPORATE DRIVE
CHANTILLY, VIRGINIA 22021
VA. LAB LICENSE #: 3333000010
NVLAP #: 1847

| | | | |
|---|---|---|---|
| PROJECT: | WOODBRIDGE RESEARCH FACILITY | DATE OF ANALYSIS: | JULY 12, 1995 |
| LAW PROJECT NUMBER: | 20340-5-0639 | SAMPLE LOCATION: | BUILDING 203, ROOM 124 |
| CLIENT: | HORNE ENGINEERING SERVICES, INC. | SAMPLE TYPE: | 2'X2' FLOOR TILE |
| LAB SAMPLE NUMBER: | WA 23962 | TEXTURE: | |
| FIELD SAMPLE NUMBER: | DO40 | COLOR: | |

| ASBESTOS | % | OPTICAL DATA FOR ASBESTOS IN SAMPLE | | | | #1 | #2 |
|---|---|---|---|---|---|---|---|
| CHRYSOTILE | 0 % | ASBESTOS TYPE | | | | | |
| AMOSITE | 0 % | ESTIMATED PERCENTAGE | | | | | |
| CROCIDOLITE | 0 % | (PERCENTAGE IS VISUALLY ESTIMATED) | | | | | |
| ANTHOPHYLLITE | 0 % | PLEOCHROISM | | YES | NO | | |
| TREMOLITE/ACTINOLITE | 0 % | IF YES, COLOR? | BLUE | GRAY | YELLOW | | |
| OTHER FIBERS | | | | | | | |
| SYNTHETIC FIBERS | % | BIREFRINGENCE | HIGH | | | | |
| GLASS FIBERS | % | | MEDIUM | | | | |
| MINERAL WOOL | % | | LOW | | | | |
| CELLULOSE | 65 % | | | | | | |
| NON-FIBROUS COMPONENTS | | | | | | | |
| BINDERS | 35 % | REFRACTIVE INDICES: | PARALLEL | | | | |
| PAINT/COATING | % | | PERPENDICULAR | | | | |
| AGGREGATE COARSE OR FINE | % | SIGN OF ELONGATION | POSITIVE | | | | |
| VINYL | % | | NEGATIVE | | | | |
| MASTIC | % | EXTINCTION | PARALLEL | | | | |
| PERLITE | % | | OBLIQUE | | | | |
| FOAM | % | MORPHOLOGY | | | | | |
| TOTAL | 100 % | | LONG FIBEROUS WAVY | | | | |
| | | | LONG FIBEROUS STRAIGHT | | | | |
| | | | SHORT FIBEROUS STRAIGHT | | | | |
| | | DISPERSION COLORS | | | | | |
| | | | YELLOW/YELLOW | | | | |
| | | | MAGENTA/BLUE | | | | |
| | | | YELLOW/BLUE | | | | |
| | | | GOLD/BLUE | | | | |

MICROSCOPIST: DATE

RONALD M. COMBS JULY 12, 1995

INSPECTOR: DATE

B. BULLOCK JULY 5, 1995

ANALYSTS COMMENTS:

# BULK SAMPLE ANALYSIS

## LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

4465 BROOKFIELD CORPORATE DRIVE
CHANTILLY, VIRGINIA 22021
VA. LAB LICENSE #: 3333000010
NVLAP #: 1847

| | | | |
|---|---|---|---|
| PROJECT: | WOODBRIDGE RESEARCH FACILITY | DATE OF ANALYSIS: | JULY 12, 1995 |
| LAW PROJECT NUMBER: | 20340-5-0639 | SAMPLE LOCATION: | BUILDING 203, ROOM 224 |
| CLIENT: | HORNE ENGINEERING SERVICES, INC. | SAMPLE TYPE: | BROWN MASTIC |
| LAB SAMPLE NUMBER: | WA 23963 | TEXTURE: | |
| FIELD SAMPLE NUMBER: | DO60 | COLOR: | |

| ASBESTOS | % | OPTICAL DATA FOR ASBESTOS IN SAMPLE | | | | #1 | #2 |
|---|---|---|---|---|---|---|---|
| CHRYSOTILE | 0 % | ASBESTOS TYPE | | | | | |
| AMOSITE | 0 % | ESTIMATED PERCENTAGE | | | | | |
| CROCIDOLITE | 0 % | (PERCENTAGE IS VISUALLY ESTIMATED) | | | | | |
| ANTHOPHYLLITE | 0 % | PLEOCHROISM | | YES | NO | | |
| TREMOLITE/ACTINOLITE | 0 % | IF YES, COLOR? | BLUE | GRAY | YELLOW | | |
| **OTHER FIBERS** | | | | | | | |
| SYNTHETIC FIBERS | % | BIREFRINGENCE | HIGH | | | | |
| GLASS FIBERS | % | | MEDIUM | | | | |
| MINERAL WOOL | % | | LOW | | | | |
| CELLULOSE | 2 % | | | | | | |
| **NON-FIBROUS COMPONENTS** | | | | | | | |
| BINDERS | 93 % | REFRACTIVE INDICES: | PARALLEL | | | | |
| PAINT/COATING | % | | PERPENDICULAR | | | | |
| AGGREGATE COARSE OR FINE | 5 % | SIGN OF ELONGATION | POSITIVE | | | | |
| VINYL | % | | NEGATIVE | | | | |
| MASTIC | % | EXTINCTION | PARALLEL | | | | |
| PERLITE | % | | OBLIQUE | | | | |
| FOAM | % | MORPHOLOGY | | | | | |
| TOTAL | 100 % | | LONG FIBEROUS WAVY | | | | |
| | | | LONG FIBEROUS STRAIGHT | | | | |
| | | | SHORT FIBEROUS STRAIGHT | | | | |
| | | DISPERSION COLORS | | | | | |
| | | | YELLOW/YELLOW | | | | |
| | | | MAGENTA/BLUE | | | | |
| | | | YELLOW/BLUE | | | | |
| | | | GOLD/BLUE | | | | |

MICROSCOPIST: DATE

RONALD M. COMBS JULY 12, 1995

INSPECTOR: DATE

B. BULLOCK JULY 5, 1995

ANALYSTS COMMENTS:

# BULK SAMPLE ANALYSIS
## LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

4465 BROOKFIELD CORPORATE DRIVE
CHANTILLY, VIRGINIA 22021
VA. LAB LICENSE #: 3333000010
NVLAP #: 1847

| | | | |
|---|---|---|---|
| PROJECT: | WOODBRIDGE RESEARCH FACILITY | DATE OF ANALYSIS: | JULY 12, 1995 |
| LAW PROJECT NUMBER: | 20340-5-0639 | SAMPLE LOCATION: | BUILDING 201, ROOM N101A |
| CLIENT: | HORNE ENGINEERING SERVICES, INC. | SAMPLE TYPE: | THERMAL SYSTEM PIPE SEALANT |
| LAB SAMPLE NUMBER: | WA 23964 | TEXTURE: | |
| FIELD SAMPLE NUMBER: | EO80 | COLOR: | |

| ASBESTOS | % |
|---|---|
| CHRYSOTILE | 0 % |
| AMOSITE | 0 % |
| CROCIDOLITE | 0 % |
| ANTHOPHYLLITE | 0 % |
| TREMOLITE/ACTINOLITE | 0 % |

| OTHER FIBERS | |
|---|---|
| SYNTHETIC FIBERS | % |
| GLASS FIBERS | % |
| MINERAL WOOL | 40 % |
| CELLULOSE | 2 % |

| NON-FIBROUS COMPONENTS | |
|---|---|
| BINDERS | 20 % |
| PAINT/COATING | % |
| AGGREGATE COARSE OR FINE | 38 % |
| VINYL | % |
| MASTIC | % |
| PERLITE | % |
| FOAM | % |
| TOTAL | 100 % |

| OPTICAL DATA FOR ASBESTOS IN SAMPLE | | #1 | #2 |
|---|---|---|---|
| ASBESTOS TYPE | | | |
| ESTIMATED PERCENTAGE (PERCENTAGE IS VISUALLY ESTIMATED) | | | |
| PLEOCHROISM | YES NO | | |
| IF YES, COLOR? | BLUE GRAY YELLOW | | |
| BIREFRINGENCE | HIGH | | |
| | MEDIUM | | |
| | LOW | | |
| REFRACTIVE INDICES: | PARALLEL | | |
| | PERPENDICULAR | | |
| SIGN OF ELONGATION | POSITIVE | | |
| | NEGATIVE | | |
| EXTINCTION | PARALLEL | | |
| | OBLIQUE | | |
| MORPHOLOGY | | | |
| | LONG FIBEROUS WAVY | | |
| | LONG FIBEROUS STRAIGHT | | |
| | SHORT FIBEROUS STRAIGHT | | |
| DISPERSION COLORS | | | |
| | YELLOW/YELLOW | | |
| | MAGENTA/BLUE | | |
| | YELLOW/BLUE | | |
| | GOLD/BLUE | | |

MICROSCOPIST: DATE

RONALD M. COMBS JULY 12, 1995

INSPECTOR: DATE

B. BULLOCK JULY 5, 1995

ANALYSTS COMMENTS:

# BULK SAMPLE ANALYSIS

## LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

4465 BROOKFIELD CORPORATE DRIVE
CHANTILLY, VIRGINIA 22021
VA. LAB LICENSE #: 3333000010
NVLAP #: 1847

| | | | |
|---|---|---|---|
| PROJECT: | WOODBRIDGE RESEARCH FACILITY | DATE OF ANALYSIS: | JULY 12, 1995 |
| LAW PROJECT NUMBER: | 20340-5-0639 | SAMPLE LOCATION: | BUILDING 201, ROOM E169 |
| CLIENT: | HORNE ENGINEERING SERVICES, INC. | SAMPLE TYPE: | 12"X12" ACOUSTICAL TILE |
| LAB SAMPLE NUMBER: | WA 23965 | TEXTURE: | |
| FIELD SAMPLE NUMBER: | E100 | COLOR: | |

| ASBESTOS | % | OPTICAL DATA FOR ASBESTOS IN SAMPLE | | #1 | #2 |
|---|---|---|---|---|---|
| CHRYSOTILE | 0 % | ASBESTOS TYPE | | | |
| AMOSITE | 0 % | ESTIMATED PERCENTAGE | | | |
| CROCIDOLITE | 0 % | (PERCENTAGE IS VISUALLY ESTIMATED) | | | |
| ANTHOPHYLLITE | 0 % | PLEOCHROISM | YES NO | | |
| TREMOLITE/ACTINOLITE | 0 % | IF YES, COLOR? | BLUE GRAY YELLOW | | |
| **OTHER FIBERS** | | | | | |
| SYNTHETIC FIBERS | % | BIREFRINGENCE | HIGH | | |
| GLASS FIBERS | % | | MEDIUM | | |
| MINERAL WOOL | 88 % | | LOW | | |
| CELLULOSE | % | | | | |
| **NON-FIBROUS COMPONENTS** | | | | | |
| BINDERS | 10 % | REFRACTIVE INDICES: | PARALLEL | | |
| PAINT/COATING | 2 % | | PERPENDICULAR | | |
| AGGREGATE COARSE OR FINE | % | SIGN OF ELONGATION | POSITIVE | | |
| VINYL | % | | NEGATIVE | | |
| MASTIC | % | EXTINCTION | PARALLEL | | |
| PERLITE | % | | OBLIQUE | | |
| FOAM | % | MORPHOLOGY | | | |
| TOTAL | 100 % | | LONG FIBEROUS WAVY | | |
| | | | LONG FIBEROUS STRAIGHT | | |
| | | | SHORT FIBEROUS STRAIGHT | | |
| | | DISPERSION COLORS | | | |
| | | | YELLOW/YELLOW | | |
| | | | MAGENTA/BLUE | | |
| | | | YELLOW/BLUE | | |
| | | | GOLD/BLUE | | |

MICROSCOPIST: DATE

RONALD M. COMBS JULY 12, 1995

INSPECTOR: DATE

B. BULLOCK JULY 5, 1995

ANALYSTS COMMENTS:

# BULK SAMPLE ANALYSIS
## LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

4465 BROOKFIELD CORPORATE DRIVE
CHANTILLY, VIRGINIA 22021
VA. LAB LICENSE #: 3333000010
NVLAP #: 1847

| | | | |
|---|---|---|---|
| PROJECT: | WOODBRIDGE RESEARCH FACILITY | DATE OF ANALYSIS: | JULY 12, 1995 |
| LAW PROJECT NUMBER: | 20340-5-0639 | SAMPLE LOCATION: | BUILDING 202, ROOM 103C |
| CLIENT: | HORNE ENGINEERING SERVICES, INC. | SAMPLE TYPE: | 12"X12" ACOUSTICAL TILE |
| LAB SAMPLE NUMBER: | WA 23966 | TEXTURE: | |
| FIELD SAMPLE NUMBER: | F120 | COLOR: | |

| ASBESTOS | % |
|---|---|
| CHRYSOTILE | 0 % |
| AMOSITE | 0 % |
| CROCIDOLITE | 0 % |
| ANTHOPHYLLITE | 0 % |
| TREMOLITE/ACTINOLITE | 0 % |

| OTHER FIBERS | |
|---|---|
| SYNTHETIC FIBERS | % |
| GLASS FIBERS | % |
| MINERAL WOOL | 90 % |
| CELLULOSE | % |

| NON-FIBROUS COMPONENTS | |
|---|---|
| BINDERS | 10 % |
| PAINT/COATING | TRACE % |
| AGGREGATE COARSE OR FINE | % |
| VINYL | % |
| MASTIC | % |
| PERLITE | % |
| FOAM | % |
| TOTAL | 100 % |

| OPTICAL DATA FOR ASBESTOS IN SAMPLE | | #1 | #2 |
|---|---|---|---|
| ASBESTOS TYPE | | | |
| ESTIMATED PERCENTAGE | | | |
| (PERCENTAGE IS VISUALLY ESTIMATED) | | | |
| PLEOCHROISM | YES NO | | |
| IF YES, COLOR? | BLUE GRAY YELLOW | | |
| BIREFRINGENCE | HIGH | | |
| | MEDIUM | | |
| | LOW | | |
| REFRACTIVE INDICES: | PARALLEL | | |
| | PERPENDICULAR | | |
| SIGN OF ELONGATION | POSITIVE | | |
| | NEGATIVE | | |
| EXTINCTION | PARALLEL | | |
| | OBLIQUE | | |
| MORPHOLOGY | | | |
| | LONG FIBEROUS WAVY | | |
| | LONG FIBEROUS STRAIGHT | | |
| | SHORT FIBEROUS STRAIGHT | | |
| DISPERSION COLORS | | | |
| | YELLOW/YELLOW | | |
| | MAGENTA/BLUE | | |
| | YELLOW/BLUE | | |
| | GOLD/BLUE | | |

MICROSCOPIST: DATE

RONALD M. COMBS JULY 12, 1995

INSPECTOR: DATE

B. BULLOCK JULY 5, 1995

ANALYSTS COMMENTS:

# BULK SAMPLE ANALYSIS
## LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

4465 BROOKFIELD CORPORATE DRIVE
CHANTILLY, VIRGINIA 22021
VA. LAB LICENSE #: 3333000010
NVLAP #: 1847

| | | | |
|---|---|---|---|
| PROJECT: | WOODBRIDGE RESEARCH FACILITY | DATE OF ANALYSIS: | JULY 12, 1995 |
| LAW PROJECT NUMBER: | 20340-5-0639 | SAMPLE LOCATION: | NA |
| CLIENT: | HORNE ENGINEERING SERVICES, INC. | SAMPLE TYPE: | CULVERT/OLD CHIMNEY LINER |
| LAB SAMPLE NUMBER: | WA 23967 | TEXTURE: | |
| FIELD SAMPLE NUMBER: | X140 | COLOR: | |

| ASBESTOS | % | OPTICAL DATA FOR ASBESTOS IN SAMPLE | | | | #1 | #2 |
|---|---|---|---|---|---|---|---|
| CHRYSOTILE | 0 % | ASBESTOS TYPE | | | | | |
| AMOSITE | 0 % | ESTIMATED PERCENTAGE | | | | | |
| CROCIDOLITE | 0 % | (PERCENTAGE IS VISUALLY ESTIMATED) | | | | | |
| ANTHOPHYLLITE | 0 % | PLEOCHROISM | | YES | NO | | |
| TREMOLITE/ACTINOLITE | 0 % | IF YES, COLOR? | BLUE | GRAY | YELLOW | | |
| **OTHER FIBERS** | | | | | | | |
| SYNTHETIC FIBERS | % | BIREFRINGENCE | HIGH | | | | |
| GLASS FIBERS | % | | MEDIUM | | | | |
| MINERAL WOOL | % | | LOW | | | | |
| CELLULOSE | % | | | | | | |
| **NON-FIBROUS COMPONENTS** | | | | | | | |
| BINDERS | 20 % | REFRACTIVE INDICES: | PARALLEL | | | | |
| PAINT/COATING | % | | PERPENDICULAR | | | | |
| AGGREGATE COARSE OR FINE | 80 % | SIGN OF ELONGATION | POSITIVE | | | | |
| VINYL | % | | NEGATIVE | | | | |
| MASTIC | % | EXTINCTION | PARALLEL | | | | |
| PERLITE | % | | OBLIQUE | | | | |
| FOAM | % | MORPHOLOGY | | | | | |
| TOTAL | 100 % | | LONG FIBEROUS WAVY | | | | |
| | | | LONG FIBEROUS STRAIGHT | | | | |
| | | | SHORT FIBEROUS STRAIGHT | | | | |
| | | DISPERSION COLORS | | | | | |
| | | | YELLOW/YELLOW | | | | |
| | | | MAGENTA/BLUE | | | | |
| | | | YELLOW/BLUE | | | | |
| | | | GOLD/BLUE | | | | |

MICROSCOPIST: DATE

RONALD M. COMBS JULY 12, 1995

INSPECTOR: DATE

B. BULLOCK JULY 5, 1995

ANALYSTS COMMENTS:

# LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

4465 BROOKFIELD CORPORATE DRIVE
CHANTILLY, VIRGINIA 22021

379-5605

## CHAIN OF CUSTODY

**PROJECT:** WOODBRIDGE RESEARCH FACILITY

**LAW PROJECT:**

**CLIENT:** HORNE ENGINEERING SERVICES, INC.

**DATE:** 7-5-95 for C020, D040, D060 7-6-95 for rest.

**INSPECTOR(S):** BRYANT BULLOCK **BUILDING:**

| SAMPLE ID NUMBER | SAMPLE TYPE | SAMPLE LOCATION | RESULTS OF PLM ANALYSIS | LAB ID NUMBER |
|---|---|---|---|---|
| C020 | 2'x4' ceiling tile | Bldg. 211 \ 3rd floor Hall | ND | 23961 |
| D040 | 2'x2' floor tile | Bldg. 203 \ rm 124 | ND | |
| D060 | Brown Mastic | Bldg 203 \ rm. 224 | ND | |
| E080 | Thermal system Pipe sealant | Bldg. 203 \ rm. N101A | ND | |
| E100 | 12"x12" acoustical tile | " \ rm E169 | ND | |
| F120 | " " " | Bldg 202 \ rm. 103C | ND | |
| X140 | Culvert \ old Chimney liner | NA | ND | 23967 |

| FIELD COLLECTION | 1ST TRANSFER | 2ND TRANSFER | DISPOSAL |
|---|---|---|---|
| NAME: BRYANT BULLOCK | FACILITY: LAW ENG. ASB LAB | FACILITY: | |
| SIGNATURE: | NAME: Rm Combs | NAME: | |
| DATE: 7-11-95 | SIGNATURE: | SIGNATURE: | |

REVISED MAY.1995

# APPENDIX C

The enclosed summary table shows the numerical results from the USAEC Asbestos checklist for every asbestos sample in each of the assessed areas. The Assessment Index value comes from the table at the back of the USAEC Asbestos Checklist. Note that the "percent asbestos" column is rated as a zero for all the materials in this report based of the criteria established in the USAEC Asbestos Checklist. According to the criteria all non-friable ACM is rated as a zero regardless of the actual percent asbestos. All of the materials in this report are non-friable. The laboratory analysis results with percentage asbestos in each material are shown in the tables in the body of the report.

The original checklist assessment categories correspond to the summary sheets. Th enclosed full version of the USAEC checklist explains the criteria for assessing each material sampled.

These 144 checklists (142 samples and two additional checklists for the 9"x9" floor tile assumed to contain asbestos) show how each material sampled was assessed by category. These checklists are shortened versions of the USAEC Asbestos Checklist eliminating the explanatory information to compress the six page original form to a single piece of paper. AEC approved the reduced version to make the checklist more convenient for field use and to save paper.

| Woodbridge Research Facility USAEC Checklist Summary | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Part I Damage Assess | | | Prox to repair | | | | | Part II Exposure Assess | | | | | | | | | | |
| Sample | Number | Building | Room | Description | | Physical | Water | A.Spray/Trowel | B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| A | 001 | 102 | NA | Painted Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 1 | | 8 | F |
| A | 002 | 102 | NA | Tan Countertop Mastic | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 1 | | 8 | F |
| B | 003 | 101 | 102 | 12"x12" Floor Tile (Gray with White and Gray Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 004 | 101 | 102 | 12"x12" Floor Tile Mastic (Gray with White and Gray Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 005 | 101 | NA | 12"x12" Floor Tile (Gray with White and Gray Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 006 | 101 | NA | Black Mastic from 12"x12" Floor Tile (Gray with White and Gray Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 007 | 101 | 102 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 008 | 101 | 103 | 2'x4' Ceiling Tile (Marble Pattern w/Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| B | 009 | 101 | NA | 2'x4' Ceiling Tile (Marble Pattern w/Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| B | 010 | 101 | NA | 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 011 | 101 | NA | Black Mastic from 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| B | 012 | 101 | 105 | Duct Gasketing Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 013 | 211 | 315 | 2'x4' Ceiling Tile (Wormy Pattern w/Large Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 014 | 211 | Hall | 2'x4' Ceiling Tile (Wormy Pattern w/Small Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| C | 015 | 211 | 307 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 016 | 211 | 307 | White Duct Glue | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 0 | 1 | 2 | 0 | 2 | | 5 | F |
| C | 017 | 211 | 310 | Troweled Window Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 018 | 211 | 307 | 4" High Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 1 | | 9 | F |
| C | 019 | 211 | 307 | Black Mastic from 4" High Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 020 | | | Duplicate of C021 | | | | | | | | 0 | | | | | | | | | 0 | F |
| C | 021 | 211 | Hall | 2'x4' Ceiling Tile (Random Mottled Pattern w/Small Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 022 | 211 | 310 | 12"x12" Floor Tile (Light Tan w/Brown Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 023 | 211 | 310 | Brown Mastic from 12"x12" Floor Tile (Light Tan w/Brown Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 024 | 211 | 113 | 12"x12" Floor Tile (Beige w/Brown and White | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 0 | 0 | 2 | | 9 | F |
| C | 025 | 211 | 112 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 0 | 0 | 2 | | 9 | F |
| C | 026 | 211 | 113 | Fire Door Insulation | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| C | 027 | 211 | 103 | Brown Mastic from Wall | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| C | 028 | 211 | 103 | 3'x3' Floor Tile | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| C | 029 | 211 | Mech. Room | Duct Gasketing Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |

| Woodbridge Research Facility USAEC Checklist Summary | | | | | Part I Damage Assess | | | Prox to repair | | | | | Part II Exposure Assess | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | Number | Building | Room | Description | | Physical | Water | A.Spray/Trowel | B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| C | 030 | 211 | Mech. Room | Troweled Material on Ceiling | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| C | 031 | 211 | Mech. Room | Boiler Jacket Insulation | | 0 | 0 | 0 | 3 | 0 | 0 | 3 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| D | 032 | 203 | Main Ent. | 12"x12" Floor Tile (Tan w/Orange, Brown, and White Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 033 | 203 | Maint. | Black Mastic from 12"x12" Floor Tile (Tan w/Orange, Brown, and White Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 034 | 203 | Main Ent. | Staircase Tread | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 035 | 203 | Main Ent. | Mastic from Staircase Tred | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 036 | 203 | 117 | Tan Plaster Base Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 037 | 203 | 117 | White Drywall Material Over Tan Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 038 | 203 | 124 | Brown Mastic from 12"x16" Acoustical Tile (3/8" Dot Pattern) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 039 | 203 | 124 | 12"x16" Acoustical Tile (3/8" Dot Pattern) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 040 | | | Duplicate of D041 | | | | | | | | 0 | | | | | | | | | 0 | F |
| D | 041 | 203 | 124 | 2' x 2' Floor Tile | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 042 | 203 | Main Ent. | 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 043 | 203 | Main Ent. | Tan Mastic from 6" Black Cove Molding (Outer Layer) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 044 | 203 | Main Ent. | Black Mastic from 6" Black Cove Molding (Inner Layer) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 045 | 203 | 108 | Tan Plaster Base Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 046 | 203 | 108 | White Drywall Material Over Tan Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 047 | 203 | 108 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 048 | 203 | 102 | Tan Duct Glue | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 1 | 0 | 2 | | 4 | F |
| D | 049 | 203 | 102 | White Duct Glue | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 0 | 1 | 2 | 0 | 2 | | 5 | F |
| D | 050 | 203 | 102 | Brown Mastic | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 3 | 1 | 0 | 2 | | 6 | F |
| D | 051 | 203 | 102 | 2'x4' Ceiling Tile (Mottled Pattern w/Small Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 052 | 203 | 125 | 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 053 | 203 | 125 | Brown Mastic from 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 054 | 203 | 124 | 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 055 | 203 | 124 | Brown Mastic from 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 056 | 203 | 225 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 057 | 203 | 225 | Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 3 | 1 | 0 | 2 | | 6 | F |
| D | 058 | 203 | 225 | Black Duct Glue | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 0 | 3 | 2 | 0 | 2 | | 7 | F |
| D | 059 | 203 | 224 | 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 060 | | | Duplicate of D061 | | | | | | | | 0 | | | | | | | | | 0 | F |

| Woodbridge Research Facility USAEC Checklist Summary | | | | | Part I Damage Assess | | | Prox to repair | | | | | Part II Exposure Assess | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample | Number | Building | Room | Description | | Physical | Water | A.Spray/Trowel | B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| D | 061 | 203 | 224 | Brown Mastic from 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 062 | 203 | 219 | Brown Mastic from Corkboard | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 063 | 203 | 2nd Floor Hall | 2'x4' Ceiling Tile (Mottled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 064 | 203 | 2nd Floor Hall | 2'x4' Ceiling Tile (Marbled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 065 | 203 | 2nd Floor Hall | 2'x4' Ceiling Tile (Wormy Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 066 | 203 | 210 | Beige, Painted (2 coats) Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 067 | 203 | 205 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 068 | 203 | 210 | 2'x4' Ceiling Tile (Mottled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| D | 069 | 203 | 202 | Tan Pressboard | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 070 | 201 | N106 | 2'x4' Ceiling Tile (Mottled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 071 | 201 | N106 | 2'x4' Ceiling Tile (Marbled Pattern w/Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 072 | 201 | N106 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 073 | 201 | N106 | Debris in Steamline Chase | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 1 | 0 | 2 | | 4 | F |
| E | 074 | 201 | Lobby | 12"x12" Floor Tile (Beige w/White and Gray Mottling) | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 3 | 2 | 0 | 2 | | 11 | E |
| E | 075 | 201 | Hall | 2'x4' Ceiling Tile (Pocked w/Small and Large Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 076 | 201 | Hall | Brown Mastic | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 077 | 201 | N101A | 4'x8' Primary Ceiling | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 1 | 0 | 2 | | 4 | F |
| E | 078 | 201 | N101A | Tan Plaster Wall Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 3 | 4 | 3 | 1 | 0 | 2 | | 13 | F |
| E | 079 | 201 | N101 | Drywall Plaster Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 3 | 4 | 3 | 1 | 0 | 2 | | 13 | F |
| E | 080 | | | Duplicate of E081 | | | | | | | | 0 | | | | | | | | | 0 | F |
| E | 081 | 201 | N101A | White Thermal System Pipe Sealant | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| E | 082 | 201 | N107A | 12"x12" Acoustical Tile (1/2" Dot Pattern) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 083 | 201 | N107A | Brown Mastic from 12"x12" Acoustical Tile (1/2" Dot Pattern) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 084 | 201 | N107A | 2'x4' Ceiling Tile (Straight Wormy Pattern w/Small and Large Pinholes) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 085 | 201 | N107B | 2'x4' Ceiling Tile (Marbled w/Many Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 086 | 201 | N107C | 2'x4' Ceiling Tile (Bone Colored, Marbled, w/Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 087 | 201 | N107 | 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |

| Woodbridge Research Facility USAEC Checklist Summary | | | | | Part I Damage Assess | | | | | | | | Part II Exposure Assess | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Prox to repair | | | | | | | | | | | | | |
| Sample | Number | Building | Room | Description | | Physical | Water | A.Spray/Trowel | B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| E | 088 | 201 | N107 | Brown Mastic from 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 089 | 201 | N109 | 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 090 | 201 | N109 | Brown Mastic from 6" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 3 | 4 | 3 | 1 | 0 | 2 | | 13 | F |
| E | 091 | 201 | N111 | Plaster Wall | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 2 | 1 | 0 | 1 | | 5 | F |
| E | 092 | 201 | N101 | Electrical Chase Debris | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 1 | 0 | 1 | | 2 | F |
| E | 093 | 201 | N116 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 094 | 201 | N118 | Brown Mastic Above Ceiling | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 1 | 0 | 2 | | 4 | F |
| E | 095 | 201 | N118 | 12"x12" Floor Tile (Beige w/Brown and White | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 096 | 201 | W154 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 3 | | 11 | F |
| E | 097 | 201 | E157 | 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 098 | 201 | E157 | Mastic from 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 099 | 201 | E157 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 100 | | | Duplicate of E101 | | | | | | | | 0 | | | | | | | | | 0 | F |
| E | 101 | 201 | E169 | 12"x12" White Acoustical Tile (1" Dot Spacing) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 102 | 201 | E169 | Brown Mastic from 12"x12" White Acoustical Tile (1" Dot Spacing) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 103 | 201 | E166 | 12"x12" White Acoustical Tile (1/2" spacing) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 104 | 201 | E166 | 12"x12" Floor Tile (Beige w/White and Gray Mottling) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 105 | 201 | E166 | Wall Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 106 | 201 | E168 | Particle Board Tan Mastic | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 1 | | 9 | F |
| E | 107 | 201 | E166 | White Duct Glue | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 3 | 2 | 0 | 2 | | 11 | E |
| E | 108 | 201 | E166 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 109 | 201 | E166 | Green Painted Wall Plaster | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 110 | 201 | Hall (S120) | Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 111 | 201 | Hall (W148 ) | 2'x4' Ceiling Tile (Mottled w/Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 112 | 201 | W148 | Painted Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 113 | 201 | W151 | 2'x4' Ceiling Tile (Pocked w/Small and Large Pinholes) | | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | E |
| E | 114 | 201 | W140 | 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| E | 115 | 201 | Maint. | 2'x4' Ceiling Tile (Wormy w/Large Pinholes and Woven Texture) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 116 | 202 | 121 | 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 117 | 202 | 121 | Brown Mastic from 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 118 | 202 | 117 | Gray, Fibrous Debris | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| F | 119 | 202 | 115 | Painted Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |

| Woodbridge Research Facility USAEC Checklist Summary | | | | | Part I Damage Assess | | | | | | | | Part II Exposure Assess | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Prox to repair | | | | | | | | | | | | | | |
| Sample | Number | Building | Room | Description | | Physical | Water | A.Spray/Trowel | B.Pipe/duct insul | Type ACM | Percent Asbestos | Damage Index | | Mat Friability | Accessibility | Activity/ Use | Air Stream | Visible Damage | Occupancy | Unoccupied Fac. | Exposure Index | Assessment Index |
| F | 120 | | | Duplicate of F121 | | | | | | | | 0 | | | | | | | | | 0 | F |
| F | 121 | 202 | 103C | 12"x12" White Acoustical Tile w/Small Pinholes | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 1 | | 9 | F |
| F | 122 | 202 | 101 | Drywall and Joint | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 1 | | 8 | F |
| F | 123 | 202 | 101 | 12"x12" Floor Tile (Green and Gray w/White Streaks) | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 2 | 2 | 0 | 1 | | 9 | E |
| F | 123A | 202 | 101 | Black Mastic from 12"x12" Floor Tile (Green and Gray w/White Streaks) | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 2 | 2 | 0 | 1 | | 9 | E |
| F | 124 | 202 | 103C | Ceiling Material | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 125 | 202 | 114 | 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 126 | 202 | 114 | Brown Mastic from 4" Black Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| F | 127 | 202 | 120 | Drywall | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| G | 128 | 210 | NA | 12"x12" Floor Tile (Beige w/Black & White Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| G | 129 | 210 | NA | Tan Mastic from 12"x12" Floor Tile (Beige w/Black & White Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| H | 130 | 204 | NA | Concrete Floor | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 0 | 1 | 0 | 1 | | 6 | F |
| H | 131 | 204 | NA | Concrete Ceiling | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 0 | 1 | 0 | 1 | | 6 | F |
| I | 132 | 306 | NA | 12"x12" Floor Tile (Rust Color w/Brown and Cream Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 2 | | 9 | F |
| I | 133 | 306 | NA | Mastic from 12"x12" Floor Tile (Rust Color w/Brown and Cream Mottling) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 2 | 1 | 0 | 2 | | 9 | F |
| I | 134 | 306 | NA | Brown Stair Tread | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 135 | 306 | NA | Brown Mastic from Brown Stair Tread | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 136 | 306 | NA | 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 137 | 306 | NA | Mastic from 4" Brown Cove Molding | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 138 | 306 | NA | Painted Drywall and Joint Compound | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| I | 139 | 306 | NA | Painted Drywall | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 3 | 1 | 0 | 2 | | 10 | F |
| X | 140 | | | Duplicate of X-141 | | | | | | | | 0 | | | | | | | | | 0 | F |
| X | 141 | NA | NA | Culvert/Old Chimney | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 1 | 0 | 1 | | 4 | F |
| X | 142 | 203 | NA | Thermal Insulation at South End Exterior | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 4 | 1 | 1 | 0 | 1 | | 7 | F |
| NA | NA | 101 201 202 203 | NA | General Assessment of All 9"x9" Floor Tile Assumed To Be ACM per the Scope of Work | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | | 0 | 4 | 3 | 2 | 0 | 2 | | 11 | E |
| NA | NA | 203 | 108 | 9"x9" Floor Tile | | 0 | 2 | 0 | 0 | 1 | 0 | 3 | | 0 | 4 | 3 | 2 | 1 | 2 | | 12 | E |

10 Apr 95

# USAEC GUIDELINES
# FOR
# ASBESTOS HAZARD ASSESSMENT
# IN U.S. ARMY FACILITIES

## Assessment Process

1. Assessment is used to determine if corrective action is needed, what corrective action to use and prioritizing the corrective actions.

a. Identify the type of Asbestos Containing Material (ACM) by taking bulk samples (i.e., wall board, pipe insulation, surface compound, etc.).

b. Evaluate the potential for fiber release (exposure potential).

c. Identify and assess the current condition of ACM using the following information:

1. Physical damage: If damage is present from vandalism, accidental physical contact or any other cause. Evidence of debris on horizontal surfaces, hanging material, dislodged chunks, scrapings, indentations, or cracking are indicators of poor conditions. If coated surface gives when slight hand pressure is applied or the material moves up and down with light pushing, then the ACM is no longer tightly bonded to its substrate.

2. Water damage: Inspect the area for visible signs of water damage, such as discoloration of or stains on the ACM; stains on adjacent walls or floors; buckling of the walls or floors; or areas where pieces of the ACM have separated into layers or fallen down, thereby exposing the substrate.

3. Deteriorating or delaminating from substrate: Inspect the area for quality of installation (i.e., separating into layers, adhesive failure) or environmental factors which affect the cohesive strength of ACM.

4. ACM in poor condition means the binding of the material is loosing its integrity as indicated by peeling, cracking, or crumbling of the material.

d. Identify potential for future damage, disturbance, or erosion of material, including accessibility of material, frequency the area is used, activity likely to cause damage and any planned changes to the area.

e. Other important factors that must be included in the assessment of ACM are the inherent friability of the material, percentage of asbestos in the material, where material is located, number of people in the area, the duration of occupancy, location of ACM to air plenum or direct airstream and importance of the area.

In most cases the asbestos material is covered with a protective jacket of cloth, tape, paper, etc. These bonding materials will prevent the material from becoming friable and/or airborne.

a. Most non-friable materials can be broken without releasing significant quantities or airborne asbestos fibers.

2. Surfacing materials are usually bonded and will not become airborne unless disturbed (i.e. vibration, drilling, etc.).

3. The amount of ACM should be identified as linear feet or square feet.

f. All supporting building documentation should be included in the individual building reports (i.e., building drawings, sampling data, assessment data of homogenous materials, work sheets, etc.).

g. ACM checklists are provided in two parts (Figure 1a and 1b). Use this checklist for assigning risk and exposure numbers. Using the numbers derived from the checklists, enter the matrix in Table 1 and find the corresponding assessment index. Then refer to Table 2 for definition of assessment index. The higher risk and exposure numbers and assessment index letters should be used only if there is a high probability of personnel exposure.

h. Asbestos Management Program requirements are outlined in Chapter 10 of reference a.

i. Recommend following the guidance provided in Chapter 2 of reference b and Chapter 5 of reference c for conducting asbestos surveys.

j. Recommend following the guidance provided in Chapter 4 of reference b and Chapter 6 of reference c for factors involved in assessing ACM.

k. Recommend following the guidance provided in Chapter 6 of reference b and Appendix E for Sampling/Analytical Procedures.

l. The new key definitions reproduced from EPA Final Rule, "National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision" are as follows:

1. Regulated Asbestos-containing material (RACM) means (a) Friable ACM, (b) Catergory I non-friable ACM that has become friable, (c) Catergory I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Catergory II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to power by the forces expected to act on the material in the course of demolition or renovation operations.

2. Catergory I non-friable ACM means asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than 1 percent asbestos.

3. Category II non-friable ACM means any material, excluding Category I non-friable ACM, containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to power by hand pressure.

4. Friable ACM is any material containing more than 1 percent asbestos by weight that hand pressure can crumble, pulverize or reduce to power when dry, as defined in the National Emission Standards for Asbestos (40 CFR 61.142). ACM with less than 1 percent is not regulated and does not require any action. If the Host Nation, State or Local Government's definition for ACM defers from the USEPA's regulation, the assessor should use the most stringent criteria.

5. Non-friable ACM is any material containing 1 percent asbestos by weight that hand pressure cannot crumble, pulverize or reduce to power when dry, as defined in the National Emission Standards for Asbestos (40 CFR 61.142).

References:

a. AR 200-1, Environmental Protection and Enhancement

b. EPA 560/5-85-024, Guidance for Controlling Asbestos-Containing Materials in Buildings

c. TM 5-612, Asbestos Control

d. Title 40, Code of Federal Regulations, Part 61, Subpart M

e. National Emission Standards for Hazardous Air Pollutants

Figure 1a
USAEC ACM ASSESSMENT CHECKLIST

Installation: Bldg/Rm No.:

Facility/Office: Inspector name/date:

Part 1: DAMAGE ASSESSMENT

Physical. Assess damage based on evidence of surface accumulation; or the condition of the sprayed-on or trowelled-on surface materials; or physical deterioration or delamination of materials using hand pressure.

_____(0) None * Non-asbestos materials; or no damage or evidence of material fallout; or material is in fair to good condition; or **non-friable** ACM, (i.e., floor tile, wallboard, etc.); or ACM with less than 1 percent.

_____(1) Minimal * Isolated and very small areas (less than 10 percent) of material damage or fallout; or controlled space and accessed by maintenance personnel only; or uncontrolled/ unoccupied space.

_____(2) Low * Visible evidence of some surface accumulation; or controlled space and accessed by maintenance personnel only; or uncontrolled/ unoccupied space.

_____(3) Moderate* Visible evidence of small areas (less than 10 percent) of surface accumulation; or controlled space and accessed by maintenance personnel only; or uncontrolled/ unoccupied space.

_____(5) High * Visible evidence of widespread surface accumulation; or uncontrolled space and easily accessed by occupants.

Water.

_____(0) None No water damage.

_____(1) Minor Visible water damage (less than 10 percent) of ACM.

_____(2) Major Visible water damage (greater than 10 percent) of ACM.

* Note: If any one or a combination of these criteria are met assign the corresponding value and line out the criteria that does not apply.

Proximity to items for repair. If both A and B apply, score the one with the highest rating. (Check all that apply. Maximum of 3 points.)

A. Sprayed-on or Trowelled-on: Could the **friable** ACM be damaged by routine maintenance activities ?

_____(0) No routine maintenance is performed within the areas.

_____(1) Equal to or greater than 5 ft.

_____(2) Equal to or greater than 1 ft but less than 5 ft.

_____(3) Less than 1 ft from routine maintenance areas or a ceiling panel contaminated with ACM must be removed.

B. Pipe, Boiler, or Duct insulation: Could damage occur as a result of routine maintenance or by occupants of building.

_____(0) No.

_____(3) Yes.

Type of ACM.

_____(0) * Non-asbestos materials; **or non-friable** ACM, (i.e., floor tile, wallboard, etc.) in good to fair condition; or ACM with less than 1 percent.

_____(1) Miscellaneous ACM (i.e. Ceiling tiles, etc).

_____(1) * Boiler; or pipe insulation; or other ACM insulation materials (Not accessible to occupants).

_____(2) Non-friable ACM (i.e., floor tile, wall board, etc.) in poor condition.

_____(2) * Boiler; or pipe insulation; or other ACM insulation materials (Accessible to occupants).

_____(3) * ACM on exterior of supply ducts; or capable of being introduced into air ducts (i.e. Deteriorated ACM located in area of air ducts; or above suspended ceilings).

_____(4) * Sprayed-on; or trowelled-on surface ACM (Accessible to occupants).

* Note: If any one or a combination of these criteria are met assign the corresponding value and line out the criteria that does not apply.

Percent Asbestos.

_____(0) Less than 1 percent ACM.

_____(1) 1 to 30 percent ACM.

_____(2) 31 to 50 percent ACM.

_____(3) Greater than 51 percent ACM.

Note: If the percent asbestos content is less than 1 percent or **non-friable** asbestos (in good to fair condition) then the total for percent asbestos category will be zero (0).

DAMAGE (D) TOTAL_____(Max 20,Min 0)
Bulk sample results should be reported using the following format:

| Sample No. | Type Asbestos | % | Source |
|---|---|---|---|

Analysis performed by
(Lab/Name/Date)_____

Figure 1b
USAEC ACM ASSESSMENT CHECKLIST
Part II: EXPOSURE ASSESSMENT

Material Friability. Defined by USEPA: "hand pressure can crumble, pulverize, or reduce to power when dry."

| | |
|---|---|
| _____(0) Non-Friable | Material (i.e., Floor tile, wall board, Binder's, etc.) in good to fair condition. |
| _____(1) Low Friability | Material difficult to crumble by hand. |
| _____(2) Moderate Friability | Material fairly easy to dislodge and crush. |
| _____(3) High Friability | Material easily reduced to powder; or broken by hand. |

Occupant Accessibility to ACM Fibers.

| | |
|---|---|
| _____(0) Low Accessibility * | Materials are not exposed; or totally isolated by permanent barrier; or accessible only during infrequent, occasional maintenance activity; or no air flow from the friable insulating material location to occupants of the building, or storage areas. |
| _____(1) Moderate Accessibility* | Only a small percent of material exposed; or material above a suspended ceiling; or material contacted during maintenance or repair; or material exposed, but not accessible to activity of normal occupants. |
| _____(4) High Accessibility * | A large percent of material exposed; or material accessible to occupants; or airborne transport during normal activities. |

* Note: If any one or a combination of these criteria are met assign the corresponding value and line out the criteria that does not apply.

Activity/use.

| | | |
|---|---|---|
| _____(0) None | | No Activity/Storage activities. |
| _____(1) Low | | Infrequent maintenance activities only. |
| _____(2) Moderate | | Frequent maintenance activities only. |
| _____(3) High | | Normal occupant activities. |

Air Stream/Plenum.

| | | |
|---|---|---|
| _____(0) None | | No perceptible air flow in the room or area. |
| _____(1) Present | | Air flow and no evidence of ACM present. |
| _____(2) Present | | ACM is exposed to perceptible or occasional air streams. |
| _____(3) Present | * | Air flow and evidence of ACM present in supply ducts/plenum; or recirculated; or subjected to routine turbulent; or abrupt air movement. |

Area of visible surface or damaged ACM.

_____(0) Less than 10 cubic or linear feet (small areas should be repaired ASAP).

_____(1) 10 to 100 cubic or linear feet.

_____(2) 100 to 1000 cubic or linear feet.

_____(3) greater than 1000 cubic or linear feet.

For Occupied Facilities Only.

Population. This involves defining average occupancy as the total number of building occupants and outside visitor traffic into a room or area during a 8 hour period. For example, a reception area in a DEH shop has 1 person assigned to the area. There are 15 individuals (including the receptionist) assigned to the building. They have approximately 240 customers (visitors) in the building during a 8 hour period. On average, each customer (visitor) is serviced and departs the building within 30 minutes.

* Note: If any one or a combination of these criteria are met assign the corresponding value and line out the criteria that does not apply.

(Outside visitors x time spent/8 hours) + building = Average
in area/room occupants occupancy

Example:([240 visitors x 0.5 hours]/ 8 hours) + 15 occupants = 30
.....Score as 2

_____(1) Less than 9 or for corridors.

_____(2) 10 to 200.

_____(3) 201 to 500.

_____(4) 501 to 1000.

_____(5) Greater than 1001.

_____(5) Medical facilities, youth centers, child care facilities, or residential buildings, regardless of the population, will be assigned to this category.

For Unoccupied Facilities Only.

_____(0) No ACM or less than 1 percent

_____(1) Non-friable ACM in good or fair condition.

_____(2) Non-friable ACM in poor condition.

_____(3) Friable ACM in good condition.

_____(5) Friable ACM with visible evidence of damage.

EXPOSURE (E) TOTAL_____(Max 26,Min 0) Inspection (Date)_____
Note: Provide any other relevant information on observations in the space provided below. If additional space is needed attach additional pages as necessary.

Table 1

Determination of an Assessment Index

Using the Damage and Exposure values derived from the checklist (Figure 1a and 1b), enter the matrix below and find the corresponding assessment index.

| | | Exposure (4 < E < 28) | | | |
|---|---|---|---|---|---|
| | | 26-20 | 19-15 | 14-8 | 7-1 |
| Damage (1 < D < 17) | 20-16 | A | A | B | C |
| | 15-10 | A | B | C | D |
| | 9-6 | B | C | D | E |
| | 5-1 | C | D | E | F |

Note: If D and/or E equal zero (0), then the assessment index of **F** will be assigned.

Table 2

| Assessment Index | Recommended Management Corrective Actions |
|---|---|
| A | **Immediate Action**- Follow-up actions may include isolation of the area, the restriction of access and/or immediate removal of the ACM. If removal is indicated, action planning should include a detailed survey. This condition will require a near term expenditure of funds. Managers must know exactly what needs to be done to eliminate the asbestos hazard and how to use available funds most effectively. |
| B | **Action as Soon as Possible**- Initiate a Special O&M* program immediately. Possible follow-up actions may include limiting access to the area and scheduling of removal during periods of low activity in the facility, not waiting for the normal repair and maintenance cycle. |
| C | **Planned Action**-Initiate a Special O&M* program. Removal should be scheduled as part of normal repair and maintenance cycle of a facility, minimizing cost and disturbance. |
| D | **Repair**-Initiate a Special O&M* program. Damaged areas should be repaired, where "repair" means returning damaged ACM to an undamaged condition to contain fiber release. |
| E | **Monitoring**-Continue Special O&M* program. Take steps to prevent damage to the ACM. Monitor the condition of all ACM frequently. |
| F | **No Immediate Action**- Continue Special O&M* program until major renovation or demolition requires removal or until assessment factors change. |

Assessment by accredited personnel* (in-house or contractor) who are experienced in and qualified to conduct asbestos assessments is required. Accredited personnel are Industrial Hygienists (American Board of Industrial Hygiene (ABIH) certified or who meet the Office of Personnel Management's 0690 classification standard) or other trained personnel with a minimum of 1 year experience in asbestos assessment activities and who are accredited in the specific area they will be responsible for (Inspector management Planner, abatement designer, contractor, supervisor, and abatement worker) as specified in the Toxic Substance Control Act (TSCA) 15 USC Section 2646 (b) (i).

* An enclosure or encapsulation will require an O&M plan to increase their effectiveness.